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OCTOBER 1943

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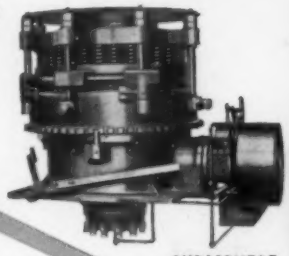
C-53

OCT 25 1943

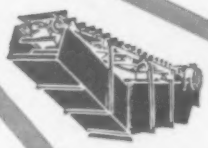
TELSMITH GRAVEL PLANT and QUARRY *Equipment*

When you modernize, expand or build a new plant—Telsmith machinery is the right answer to your production problems. From crushers to bin gates, every unit is designed, engineered, and built "right" *by Telsmith.* And Telsmith selective engineering service fits it to do the job you want done at the lowest operating cost. To push production to new peaks—buy Telsmith. Get Bulletin E-11.

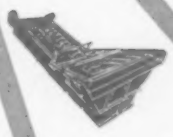
SAND TANKS



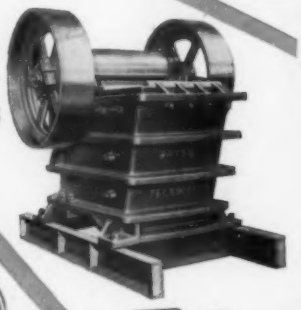
GYRASPHERE CRUSHERS



SAND DRAGS

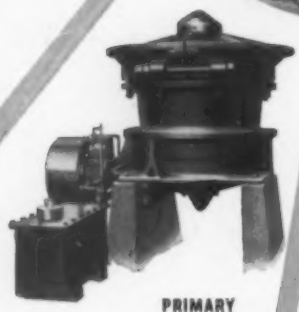


SAND CLASSIFIERS



JAW CRUSHERS

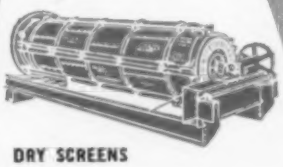
BELT AND BUCKET ELEVATORS



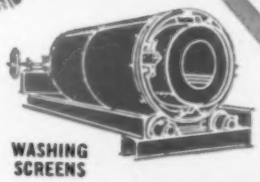
PRIMARY BREAKERS

REDUCTION CRUSHERS

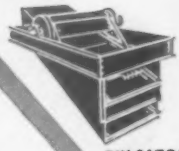
HEAVY DUTY FEEDERS



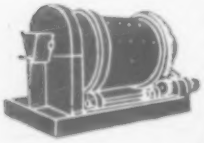
DRY SCREENS



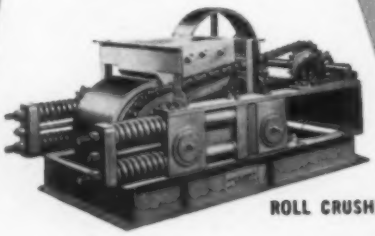
WASHING SCREENS



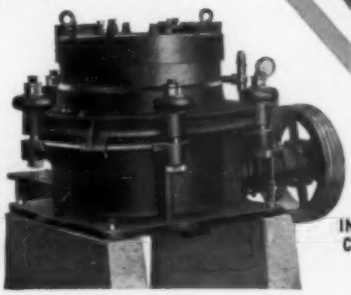
PULSATORS



SUPER SCRUBBERS



ROLL CRUSHERS



INTERCONE CRUSHERS

E-4

SMITH ENGINEERING WORKS, 508 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

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...and built to carry it!

IRON ORE . . . that happens to be the critical payload in this case. We are proud to be playing our part in this important work.

Born of nothing more than rough sketches and verbal expressions, these bodies represent the ideas of a practical operating man and EASTON'S conception of how to accomplish his job. What EASTON has been done for others can also be done for you.

EASTON has been a specialist in tailor-made trailers, dump trucks, mine cars, and electric lift trucks for years. If you're confronted with a materials handling problem, there's a good chance we can help you. Write to: Engineering Counsel, Easton Car & Construction Company, Easton, Pa.

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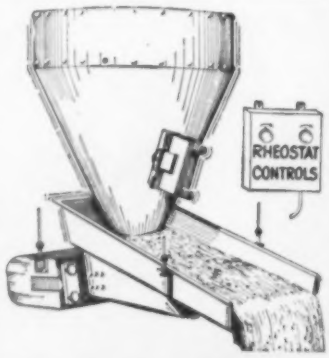
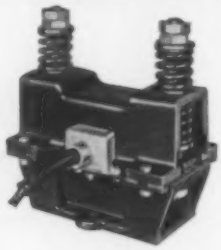


FOR EFFICIENT MATERIAL HANDLING



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"Pulsating Magnet"

ELECTRIC VIBRATORS

With adjustable power on those troublesome bins and hoppers to keep their contents agitated and free-flowing.

Little 4 lb. models—up to big 500 lb. sizes.

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"Vibra-Flow"

VIBRATING FEEDERS

Under those bins and hoppers to regulate their discharge by rheostat control of rate of flow.

Profusely illustrated and described in Catalog No. 435.

SYNTRON CO.

450 Lexington Homer City, Pa.

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Feeding 80 tons per hour to a Hungry Baby

One of the 4 Lorains owned by Highland Sand & Gravel Company, feeding material into a special dry sand-screening apparatus at the company's Burlington, Mass. Pit.

THAT'S the job being performed by this Lorain-40 Crane, owned by Highland Sand & Gravel Co., West Roxbury, Mass. It works 11 hours a day, week in and week out —feeding material, loading sand into trucks, casting accumulated tailings to one side.

There's no time out on this job. Each type of handling requires 10 to 20 feet of travel to a new position—keeps the Lorain constantly on the move.

This type of high speed, high-pressure work demands a machine that can work fast, and take plenty of punishment. The ¾-yd. Lorain, like all others in ⅜ to 2-yd. Lorain line, gives you more of everything you need—power, capacity, strength, and versatility.

Why not see your Lorain distributor for complete information on the Lorain line? He is the best source for information on any new types or designs of post-war equipment and can give you up-to-the-minute advice on the latest, most efficient methods of material handling.

THE THEW SHOVEL COMPANY
LORAIN, OHIO

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CRANES • SHOVELS • DRAGLINES • MOTO-CRANES

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TO SAVE TIME-MANPOWER-MONEY

THE *St. Regis* VALVE PACK SYSTEM

1 **SAVE TIME.** Preweighing and forcing cement at high speed through the valve opening, the St. Regis Valve Bag Packing Machine under average operating conditions packs from 8 to 24 (94 lb.) Multiwall Bags per minute. Experience proves that this machine saves from 30% to 50% in actual manhours.

2 **SAVE MANPOWER.** *Only one* operator is required on the St. Regis Valve Bag Packing Machine even when it is equipped with 2 or 4 filling tubes. So simple is the work involved that it can be quickly learned and skillfully performed by inexperienced hands. Since all lifting of bags is eliminated, the machine can be successfully operated by a woman where the manpower shortage is acute.

3 **SAVE MONEY.** Installed and operated at minimum expense and eliminating the need for any closing equipment, the St. Regis Valve Bag Packer assures lasting economy. Its outstanding service record in leading rock products companies shows 10, 15, 20 and 25 years of unbroken use.

4 The number of these machines available for immediate installation is limited. Should you be interested in a St. Regis Valve Bag Packing Machine, it would be wise to lose no time in communicating with our nearest office.

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Franklin, Va. Nazareth, Pa. San Francisco, Calif. Toledo, Ohio

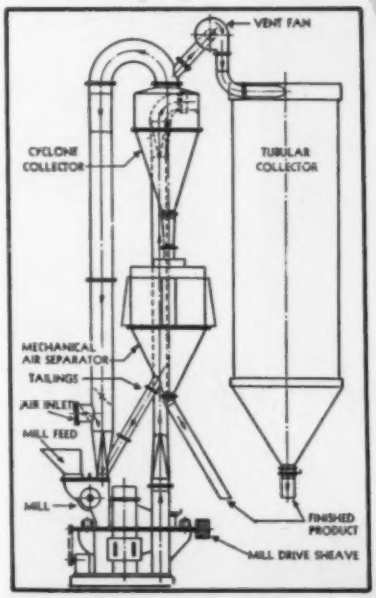
How the IMP MILL ... SIMPLIFIES PRODUCTION

Readily Adaptable for Various Pulverizing Jobs

Standard Imp Mill at left, arranged for general grinding operations, as in reducing burnt lime and classifying it to uniform fineness by air separation. Also can be modified into a direct-firing unit for supplying small capacities of powdered coal to kilns, furnaces and stills.

For Closed Circuit Grinding

Flow sheet of the Imp Mill with Mechanical Air Separator and Tubular Collector for operations requiring extreme fineness and uniformity. The tailings go back to mill for regrinding.



Whizzer-Equipped

Imp Mill at right shown with Whizzer Separator which gives wide range fineness control and increased capacities on very fine materials. Variable speed transmission on whizzer drive permits control of classification from 80% minus 100-mesh to 99.5% passing 325-mesh.

Write for Catalog No. 41

With Flash Drying

Operating as a Kiln Mill for removing moisture from materials while pulverizing, as in producing calcined gypsum . . . dried, ground and classified in one operation.

RAYMOND PULVERIZER DIVISION
COMBUSTION ENGINEERING COMPANY, INC.
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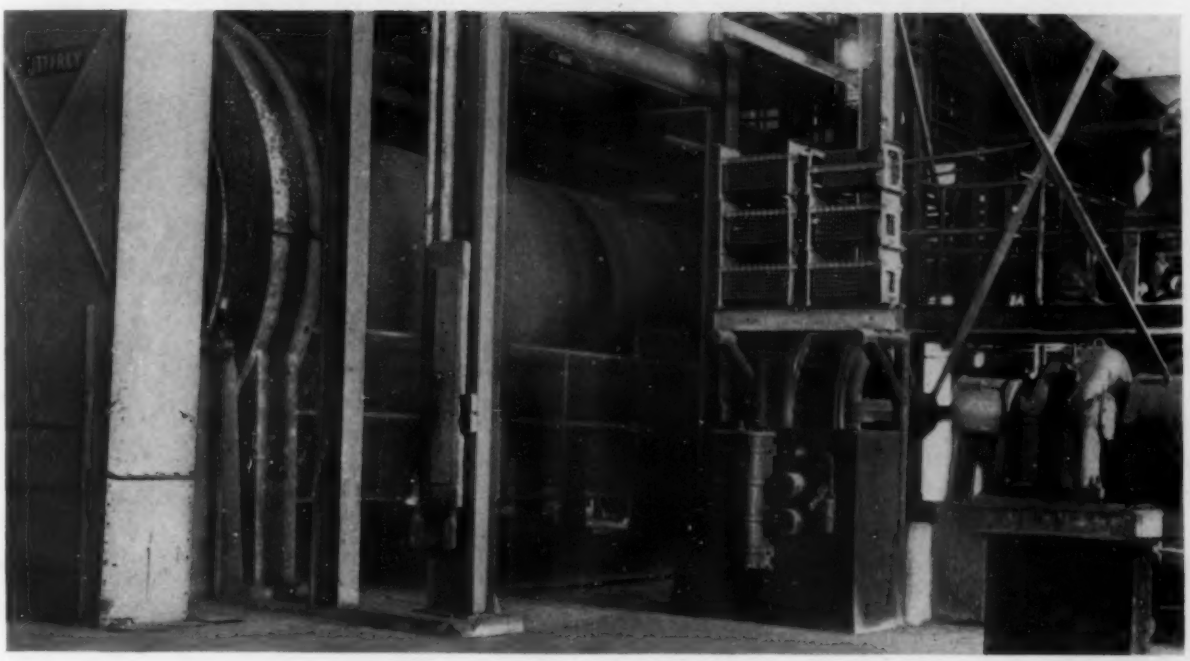
Sales Offices in Principal Cities • • • In Canada: Combustion Engineering Corporation, Ltd., Montreal

What particular advantages will TIMKEN ROCK BITS bring to you?

There is no clear-cut answer to this question. It depends on the rock being drilled on a given project plus many other factors. Yet no matter how *different* your drilling problems, the Timken Bit possesses a number of characteristics one or more of which will result in an important saving to you. Hundreds of users on thousands of projects in every corner of America have been exceptionally pleased with the performance of Timken Bits. The rock they drill is in all cases *different* — to a greater or lesser degree. A trial on the job will convince you — why delay.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

Traylor at Gulf



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Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Slakers
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

MERIT ALWAYS WINS!

Two more join the long procession of Traylor Compartment Mills that day in and day out, year in and year out, are at work producing a large percentage of America's Portland cement and much of her chemical products. The photo shows a 7'-0" x 30'-0" Traylor Three-Compartment Mill grinding clinker at the Ideal Cement Company's Gulf Plant, Houston, Texas. In this same plant raw grinding is done in a 7'-0" x 26'-0" Two-Compartment Mill.

In common with all Traylor Grinding Mills, the shells of both of these units are in one piece, welded by our original technique, which fuses the edges of the individual plates in such manner that the joints actually *are stronger than the parent metal.* Obviously, this makes for the strength and dependability of the whole machine that is invaluable to operators, a circumstance that is much appreciated, if the large number of Traylor Mills in use can be considered a criterion.

This shell construction is only one of the many mechanical features of Traylor Grinding Mills that single them out in the crowd—the building-in of ideas of our engineers, based on their intimate knowledge of the work to be done, knowledge gained by incessant observation and study. To investigate Traylor Grinding Mills is to install—to install is to enjoy big profits and permanent satisfaction. Consult us!

P. S. The shells of Traylor Rotary Kilns, Coolers and Dryers are built like this, too!

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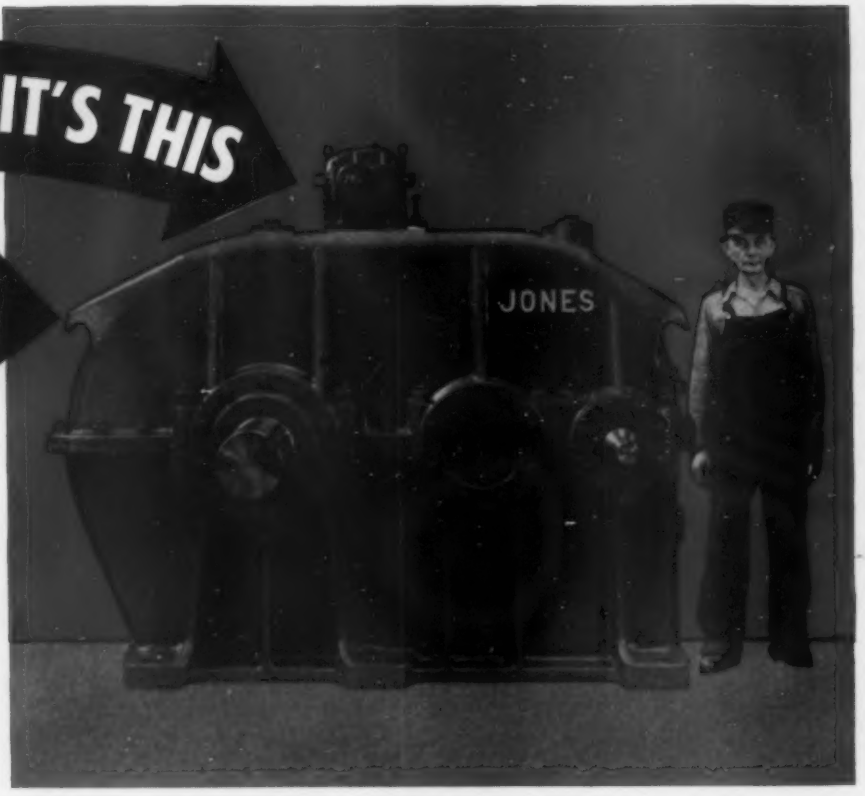
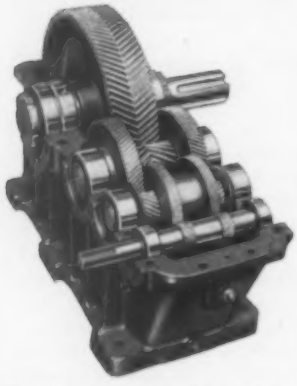
WHETHER IT'S THIS

—OR THIS



. . . both will stand up under war time conditions



The above view of a Jones Triple Reduction Herringbone Speed Reducer is typical of a line that is noted for advanced design, superior materials, precision workmanship.

TWENTY FOUR hours a day operation plus loading up to rated capacity or beyond are testing speed reducers in every type of service.

Jones Herringbone Speed Reducers are establishing remarkable service records under these conditions. One reason of course is the fact that Jones Reducers have always been rated in accordance with the recommended practice of the American Gear Manufacturers Association.

With this conservative rating policy goes sturdiness, compactness, symmetry and balance—all factors that influence maximum efficiency, long life and improved performance.

Jones Herringbone Gear Speed Reducers are built in a wide range of ratios and ratings to cover every requirement. Single (Type SH) reducers in standard ratios range from 1.25 to 1 up to 11 to 1 in ratings from 1.3 to 440 H.P. Double (Type DH) reducers are built in standard ratios from 10.9 to 1 up to 72 to 1 in ratings from 0.5 to 275 H.P. The triple reduction reducers (Type TH) cover a range of ratios from 86.9 to 1 up to 355.8 to 1 in ratings from 0.3 to 78 H.P.

All these reducers have heat treated gears, ground shafts and are mounted with anti-friction bearings throughout. Cast iron bases are available for all variations of motor assembly.

For complete information on both standard and special applications of Jones Herringbone Reducers ask for Catalog No. 70. This 128 page catalog is a comprehensive technical treatise on the whole subject of Herringbone Reducer application for all conditions of service. If you have any type of drive problem that might call for Herringbone gears we shall be pleased to send you a copy.

W. A. JONES FOUNDRY & MACHINE CO., 4447 Roosevelt Road, Chicago, Ill.

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HERRINGBONE — WORM — SPUR — BEVEL SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

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Today America's magnificent highway trucking system has become the greatest production line in history—an endless chain in which over 4,500,000 trucks play their vital part in the miracle of America's war production. Either as raw material, or finished product, almost every bit of war equipment travels by truck. With truck manufacture halted for the duration, existing trucks and the men who drive and service them are doing a mighty job. Mack is doubly proud that the *extra* quality, *extra* strength, *extra* long life built into every Mack now means so much not just to Mack owners, but to the country as a whole!

Mack Trucks, Inc., Empire State Building, New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.

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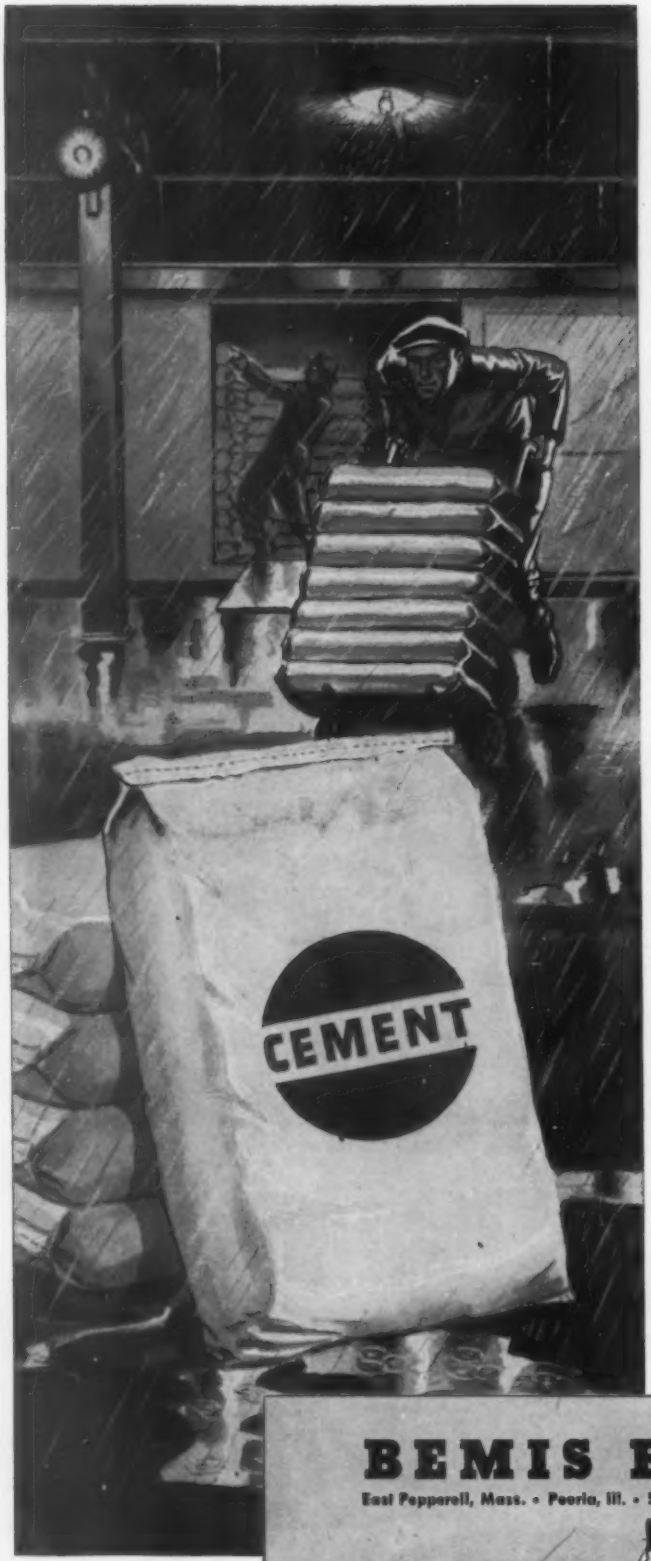
FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!



TRY THIS!

and prove to yourself that BEMIS MULTIWALL PAPER BAGS are showerproof

TAKE a Bemis Multiwall Paper Bag, filled with your cement, and set it out in the weather. Let it rain . . . let it pour! (If the air is filled with sunshine around your plant, use a hose to simulate rain.)

After you're convinced that the bag has been in more weather than it ever will have to stand in ordinary use, let it set 'til it's dry. Then open it, and see how freely the cement pours out!

Protection against sudden showers is only *one* advantage of using Bemis Multiwall Paper Bags to package your cement. You'll find that these containers are economical . . . that they have strength to reduce lost time due to breakage on the production line . . . that they have ruggedness to protect your product in transit and on the job.

We'd like to have you know about the qualities of Bemis Multiwall Paper Bags before you place another bag order. So, we suggest you try this experiment soon. We'll send sample bags for the trial, if you'll ask for them. No charge and no obligation, of course.

BEMIS BRO. BAG CO.

East Pepperell, Mass. • Peoria, Ill. • San Francisco, Calif. • Wilmington, Calif. • St. Helens, Ore.

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The Care and Maintenance of Rock Crushers

Ten Time and Money-Saving Maintenance Rules:

No. 5 of a series of advertisements published in the interests of national economy and to aid those users of crushing equipment unable to secure new units during the emergency.

1. Be sure there is no play in side bearings. Tighten locking nuts with a blunt chisel and hammer, as illustrated.

2. Before shutting off power, be sure that machinery is cleaned of all stone or gravel.

3. Keep your equipment clean and free of dirt and excess grease.

4. Tighten all loose nuts and bolts every morning or every night, and check them periodically during the day. Make a thorough check after moving to a new location. Loose parts cause rapid wear or serious breakage and costly delays.

5. Crusher and chassis should always be kept level

6. The key wedge should be kept close to the jaw. Insert shims behind wedge if necessary. Check wedge daily to be sure that it is tight; and that movable jaw remains centered.

7. Always adjust movable jaws when crusher is running empty, until they touch lightly. Then back them off slightly for clearance. Never allow them to pound. Tension spring should be just loose enough to allow free operation.

8. Don't raise or lower the adjusting wedge enough to cause a tilting in the toggle plate bearing wedge. Use a longer or shorter toggle to get the desired opening at the discharge opening of the jaws.

9. Be sure toggle seat on pitman is tight.

10. Be sure to use genuine parts—and see that they are properly installed. Follow instruction sheets or consult manufacturer.

UNIVERSAL ENGINEERING CORP.

Formerly Universal Crusher Co.

619 C Ave. West Cedar Rapids, Iowa

They're giving their lives—
let's lend our money!

UNIVERSAL

CRUSHERS, PULVERIZERS, COMPLETE PLANTS, SPREADEROLLERS, PORTABLE ASPHALT PLANTS

It Pays To Keep Machinery In Proper Repair

● The tendency in idle periods is to economize by omitting necessary repairs to machinery.

● But risking ruination of machinery representing a large investment, for want of care or a few inexpensive replacement parts, is hardly justified.

● Not only is there the danger of injury to the machine, but a breakdown, when it occurs, usually comes when the machine's capacity is most required.

Idle Periods are an Opportune Time to Overhaul

Busy Periods Require the Machines to be Kept Up

● AND REMEMBER, when obtaining repair parts, that the manufacturer of the machine for which they are intended has gained experience with many similar machines in other plants—that he is constantly making improvements in those parts based on this experience—that his shop is equipped with tools specifically for the manufacture of such parts—that the parts are usually made to templet, making easy changeability—that many of the parts are patented and that he is interested in supplying parts that will assist in obtaining the highest efficiency from the machine itself.

F. L. SMIDTH & CO.

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A NEW BOOK
THAT SHOWS YOU THE
INSIDE STORY—

Design principle of the PIONEER JAW CRUSHER
OVERHEAD ECCENTRIC SHAFT
The overhead eccentric gives a forward and downward crushing stroke
SKF BEARINGS
SKF bearings are mounted close together and fully protected by labyrinth oil seals.
TOGGLE PLATE
The toggle plate holds the lower end of the Pitman at the proper setting, but will break first to protect the crusher from damage
WELDED STEEL BASE
Double wall welded box construction provides strong rigid base
MOVING JAW PLATE
Moving jaw plate has overhanging lip to protect lip and bottom of Pitman
ADJUSTING MECHANISM
Wedge type adjustment gives easy, quick adjustment without shutdown
JAW PLATES
Jaw plates are manganese, reversible and curved for maximum capacity and wear

IT TELLS YOU . . . . .

- How a Jaw Crusher Operates
- Why the Overhead Eccentric Crushes More Rock
- How the Screw and Wedge Adjustment Saves Time
- Why the Double Wall Welded Base is Stronger
- How SKF Bearings Take End Thrust as Well as Radial Load
- Why Self Aligning Bearings Are Essential
- How the Labyrinth Seals Protect the Bearings
- How New Jaw Design Protects the Pitman Lip

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of pertinent data—photographs and drawings.

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—it's FREE!

To PIONEER ENGINEERING WORKS
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Please send us a copy of "Pioneer Jaw Crushe

To_____

Pioneer

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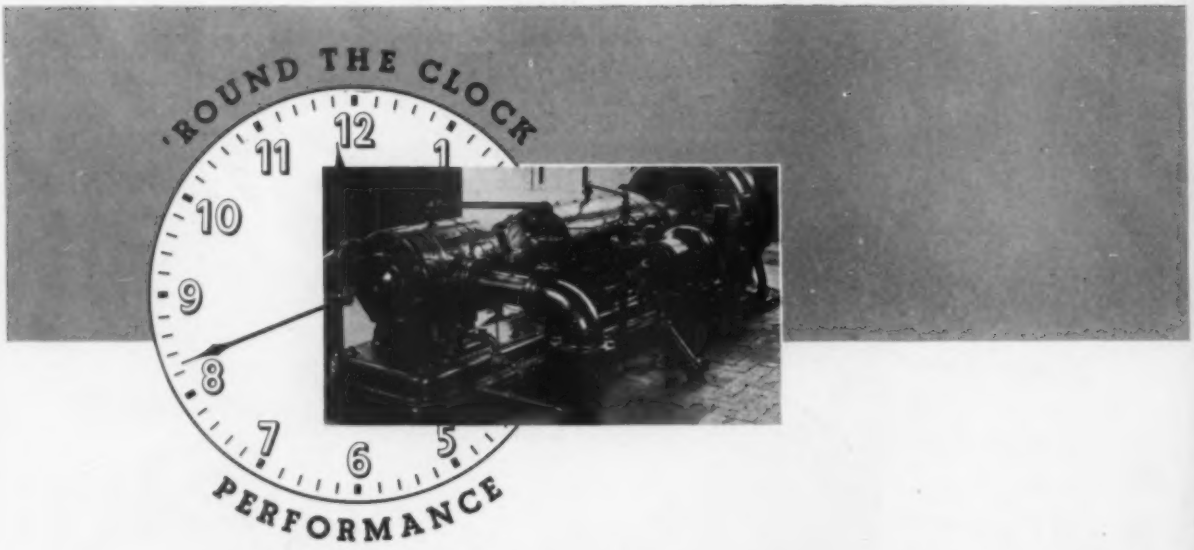

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In a foundry—During three years' operation only $3.90 was spent for repairs on a two-stage compressor. (330 C.F.M., 100-lb. pressure).

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FULLER COMPANY
Catasauqua, Pa.

Please send Bulletin C-5, describing Fuller Rotary Compressors and Vacuum Pumps.

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City..... State.....

C-92

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Day and night, in these open pit mines and quarries which dot the map from South America's tropics to Canada's frozen north, the big P&H Electric Shovels are clawing out the earth's treasures of metallic ores, coal and limestone —feeding blast furnaces and smelters where the roar of production swells into a crescendo of Victory.

Yes, real Americans they are, these P&H Electric Shovels. Born in Milwaukee, descended from a long line of excavators, they bring mass production methods with the speed and stamina that mean lower costs per ton wherever raw materials are dug in large volumes.

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★ *WILL NOT PRODUCE HEADACHES FROM HANDLING OR FROM MUCK PILE FUMES*

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EXPLOSIVES 1905 TROJAN 1943 CHEMICALS

ARMY E NAVY

Like all true Americans, we, of the Trojan Powder Company, detest war. We dislike to see our products used for purposes of destruction. But, as in World War I, we are grateful for the privilege of placing our resources at the disposal of our country, in the hope that they will play their part in speeding the day of peace, when Trojan High Explosives will again be used exclusively in constructive pursuits . . . to aid, as in years gone by, in the development of our Nation's resources.

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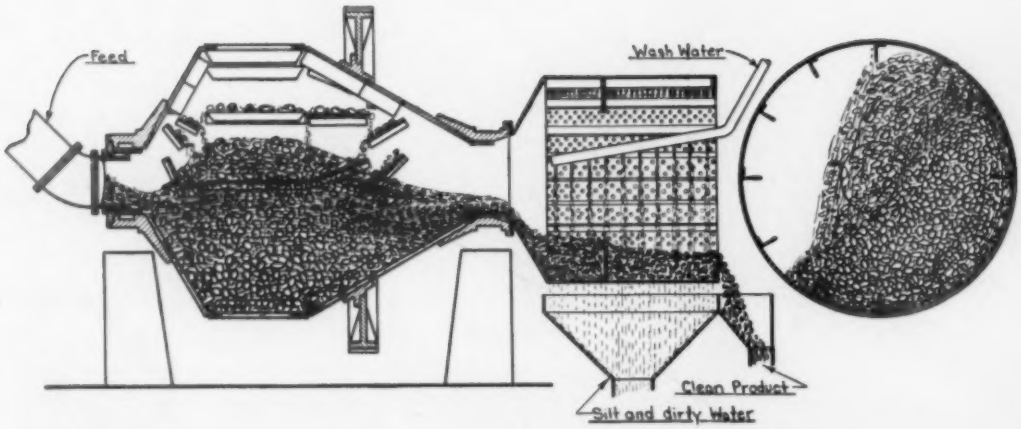


For Cleaning Sand Stone and Gravel

The Hardinge Conical Scrubber is the only Scrubber that will remove large clay balls with a small amount of water.

HARDINGE EQUIPMENT	Bulletin No.
Agitators	31-C
Clarifiers	31-C
Classifiers, Air	17-B
Classifiers, Counter-Current	39-A
Classifiers, Hydro	31-C
Density Stabilizer	42
Digesters	36
Dryers	16-C
"Electric Ear"	42
Feeders, Belt	33-C
Feeders, Constant Weight	33-C
Feeders, Disc	33-C
Feeders, Drum	33-C
Feeders, Non-Flooding	33-C
"Feedometer"	43
Filters, Sand	30-A
Metal Reclamation	8-A
Mills, Batch	19-A
Mills, Conical Ball	13-D
Mills, Conical Pebble	13-D
Mills, Rod	25-B
Mills, Tube	18-A
Mixers, Slurry	31-C
Pumps, Diaphragm	32
"Ruggles-Coles" Dryers	16-C
Kilns and Coolers	16-C
Scrubbers, Conical	37
"Thermomill"	17-B
Thickeners	31-C

The Conical Scrubber consists of a rotating conical drum equipped with lifter flights and a trommel screen attached to the discharge trunnion. The drum rotates at a relatively high speed, 24 R.P.M. for a 7 ft. diam. scrubber.

A small amount of water is introduced with the feed and the cascading action of the mass breaks up the clay balls and scours the material. The scrubbed material with the dirty water flows into the screen where a water spray removes the dirty water and fines through the screen. The cleaned dewatered material is discharged from the screen.

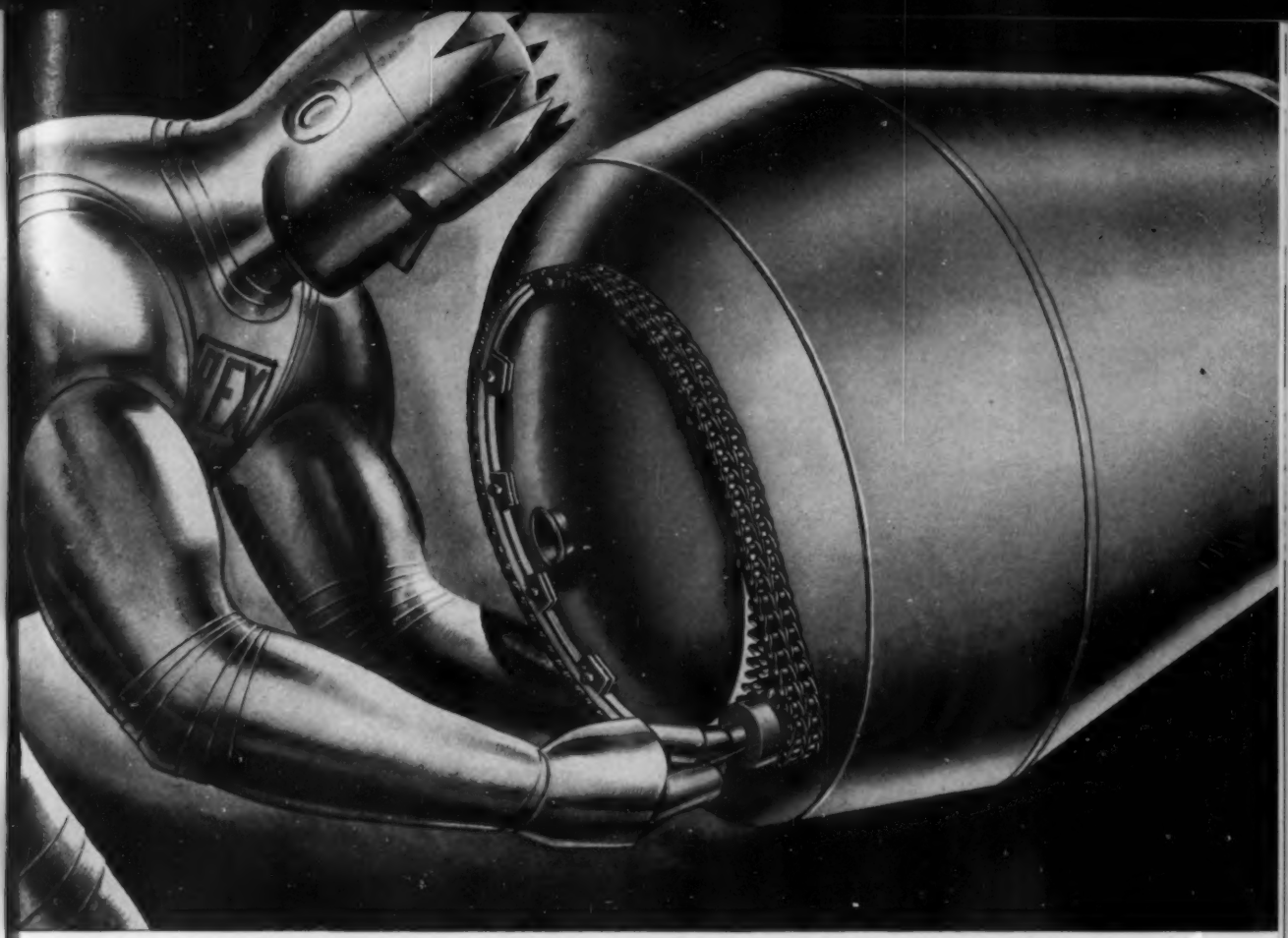
A 7 ft. by 48 in. scrubber is handling 60 tons per hour of minus 4½ in. plus 2½ in. river gravel to remove clay balls. This scrubber operates at 24 R.P.M. and is driven by a 75 H.P. motor. The maintenance on this scrubber over a period of years has been low.

Write for Bulletin 37

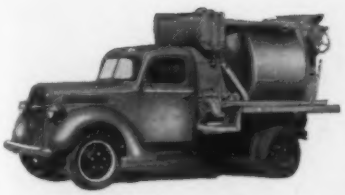
HARDINGE

COMPANY, INCORPORATED - YORK, PENNSYLVANIA

New York, 122 East 42nd Street Chicago, 205 West Wacker Drive San Francisco, 501 Howard Street Toronto, 200 Bay Street



HE CUSHIONS ROAD SHOCKS *with his Flexible Drive . . .*



Truck mixers, rolling along the road, pick up drum vibrations and shocks. These shocks, if transmitted to costly transmissions, power plants and other vital working parts, cause damaging strain and excessive maintenance.

Knowing this, Rex Mechanical Engineering—Rex M. E.—designed his Moto-Mixer with the exclusive flexible chain belt drive—the sturdiest drive in the industry. Because this chain drive goes completely around the drum, and because of the inherent shock absorbent ability of chain belt, each link of the chain absorbs its share of the shock load. This cushions the transmission and other vital working parts from damaging road and mixing shocks. There are no unyielding gears and pinions to bind and create damaging strain as the truck weaves over the road.

Rex M. E. has mounted his drive shaft parallel to the axis of the drum—a direct transmission of power from its source to its application—the most efficient method of transmitting power.

This is but one of the many features which Rex M. E. has incorporated in the design of his Moto-Mixer. Through many years' experience in the design and manufacture of equipment for the mixing, placing and hauling of concrete, Rex M. E. has learned the problem of the contractor and construction engineer. In the building of Rex construction machinery, he has applied that knowledge in the way most helpful to them.

To give you the whole story, Rex M. E. urges you to write Chain Belt Company, 1649 W. Bruce St., Milwaukee 4, Wis., for complete information on his Moto-Mixer.

REX **CONSTRUCTION MACHINERY**

Concrete Mixers • Moto-Mixers • Pumpcretes • Pavers
Mortar and Plaster Mixers • Speed Prime Pumps

CHAIN BELT COMPANY OF MILWAUKEE

on the tailings

hard digging

removing overburden

feeding the grizzly

Yes-

NORTHWESTS WILL BE BUILT IN A FULL RANGE OF SIZES

18 SIZES

3/8 yard capacity and larger

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After VICTORY Buy NORTHWEST

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Shovels • Cranes • Draglines • Gasoline • Diesel or Electric

STURTEVANT Air Separators Are Stepping Up Production, Too

Along the far-flung battle line of America's wartime production, *Sturtevant Air Separators* are in there, day in and day out, doing their part remarkably well in the tremendous job being done.

All *Sturtevant Air Separators* have been installed "on approval" —none have been rejected. Proof enough that *Sturtevant* does a real job—*can do a real job for you.*

Find out how *Sturtevant* gives (1) Range of fineness from 40 to 350 mesh. (2) Capacities of ¼ ton to 50 t.p.h., while increasing mill capacity as much as 300%. (3) Controlled specific surface area. (4) Lowered mill and product temperatures.

Write us for latest bulletin and engineering information now!

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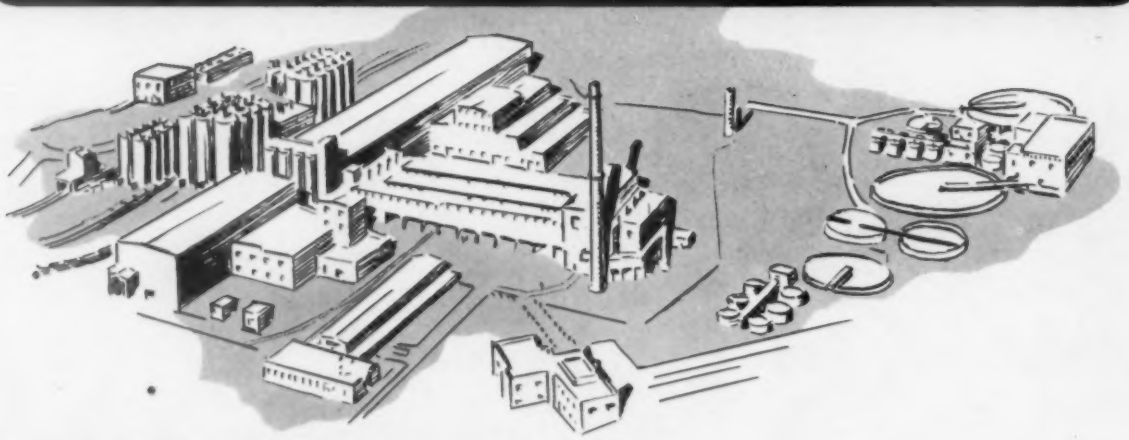
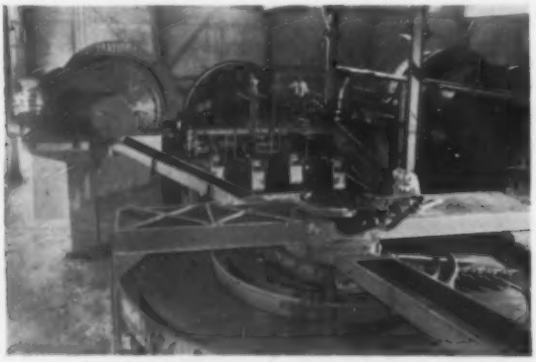
UNIVERSAL ATLAS' NEW NORTHAMPTON PLANT

DORR EQUIPPED FOR MODERN CEMENT PRODUCTION



Close-up of Dorr Slurry Mixers. Dorr Thickener in background



Close-up of a Dorr Bowl Classifier in closed circuit with ball mill

UNIVERSAL ATLAS' new plant at Northampton, Pa., employs the very latest developments known to the cement industry. Result—production of cements of different chemical composition from a single source of crude limestone readily available at the property through the use of the Breerwood Process.

Dorr Classifiers are employed for primary and secondary grinding—Dorr Thickeners for slurry and concentrates thickening—Turbo Mixers for slurry conditioning and a battery of Dorr Slurry Mixers for blending and storage. Dorr Classifiers and Thickeners are also used for the separate sand-iron circuit—an innovation used for the first time at Northampton.

This flexible plant—capable of delivering a diversity of products from a uniform raw material—is a good example of how the cement industry is meeting the challenge of today's intricate construction requirements. It is a good example, too, of the important role Dorr equipment is playing in these advanced methods.

If you are planning a new plant or would like to convert to more modern methods, we will be glad to help you with our experience.

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"We can't get along without plenty of that *friendly* wire rope. What does it do? Just stick around, soldier—and how do you think that souped-up bronco you're running around in got off the boat? Wire Rope!"

The guard is right. It takes a lot of easy-handling wire rope to move the stuff an Army needs. Think of North Africa—think of Sicily! And there has to be *enough* of it!

That's why you and we at home here have to conserve the wire rope *we* use.

But when you do need to order replacements, won't you please accept it *without* reels, if lengths permit, so that handier reels can be spared for the boys out there? Wickwire Spencer Steel Company, 500 Fifth Avenue, New York 18, N. Y.

• • •

Wickwire Spencer, the first in New England to be awarded the Maritime M and Victory Fleet Flag, has now received the GOLD STAR for maintaining excellence of production.

DO YOUR MEN KNOW PROPER SHEAVE DIAMETERS?

Our FREE book, "Know Your Ropes," will tell them. It tells why a sheave that is too small wears out rope fast. It shows how to figure the right size sheave for every diameter of rope . . . and gives numerous other "Life Savers" that will help make your present wire rope last longer. Send for your free copy, today!

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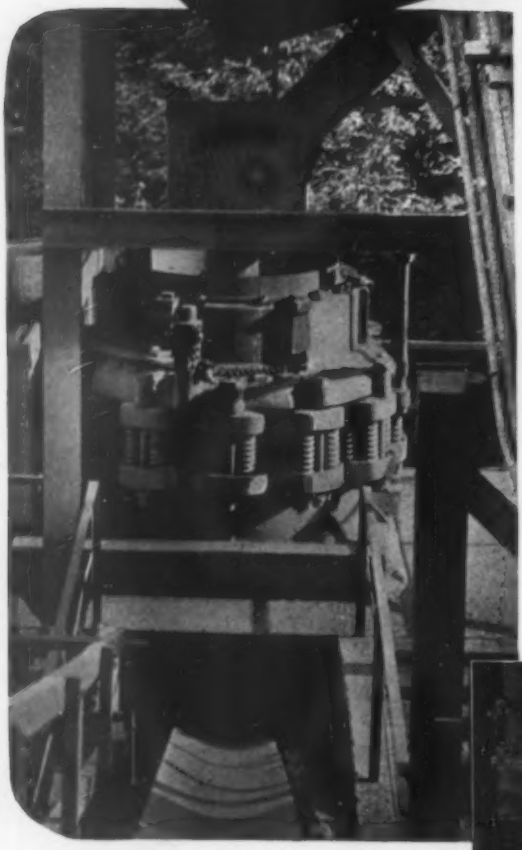
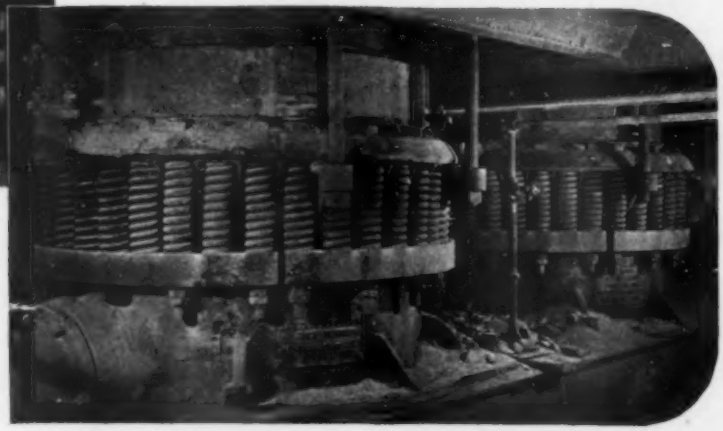
WISSCO PRODUCTS

SYMONS SHORT HEAD CONE—now supplies that finer sized stone



A four-foot Short Head Cone makes the minus ¾ inch material.

Here is another instance where a Symons Short Head Cone has been added to meet the changing demand for finer crushed material. The two Standard Cones were originally installed to take a 2 to 4 inch feed and make all the finer sizes then required. With an increased use of more material ranging in sizes from minus ¼ inch to minus ¾ inch, the Standard Cones are now only making the ¾ to 1½ inch sizes, while the Short Head Cone is taking the discharge from the Standards and supplying the finer products. The Short Head Cone is arranged to operate independently of the main plant, taking the surplus of any size in storage and readily producing any of the finer sizes for which there is a ready market. This combination of Symons Standard and Short Head Cones permits of greater flexibility and economy of operation and a lower crushing cost, and is the answer to meeting present day demands for the finer sizes of crushed materials.



Two four-foot Standard Cones do the ordinary reduction crushing.

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SYMONS CONE CRUSHERS

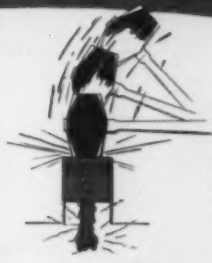
Get in the Scrap...

don't make it!

BUDA

... start regular engine maintenance NOW!

SURE you can buy Buda engine parts—they're stocked by BUDA distributors all over the country. But those stocks are precious reserves to keep America's Victory power on the job. Every part used must be replaced—using up needed materials, precious skilled machinist's time, scarce machine-tool capacity. Every part that regular engine care can save helps us build MORE for the actual battlefront. So dig out your instruction book and TAKE CARE OF THAT ENGINE—REGULARLY!



ORDINARY DIESELS . . . High cylinder pressures produce sledge-hammer blows that punish pistons, rods and crankshaft every power stroke.

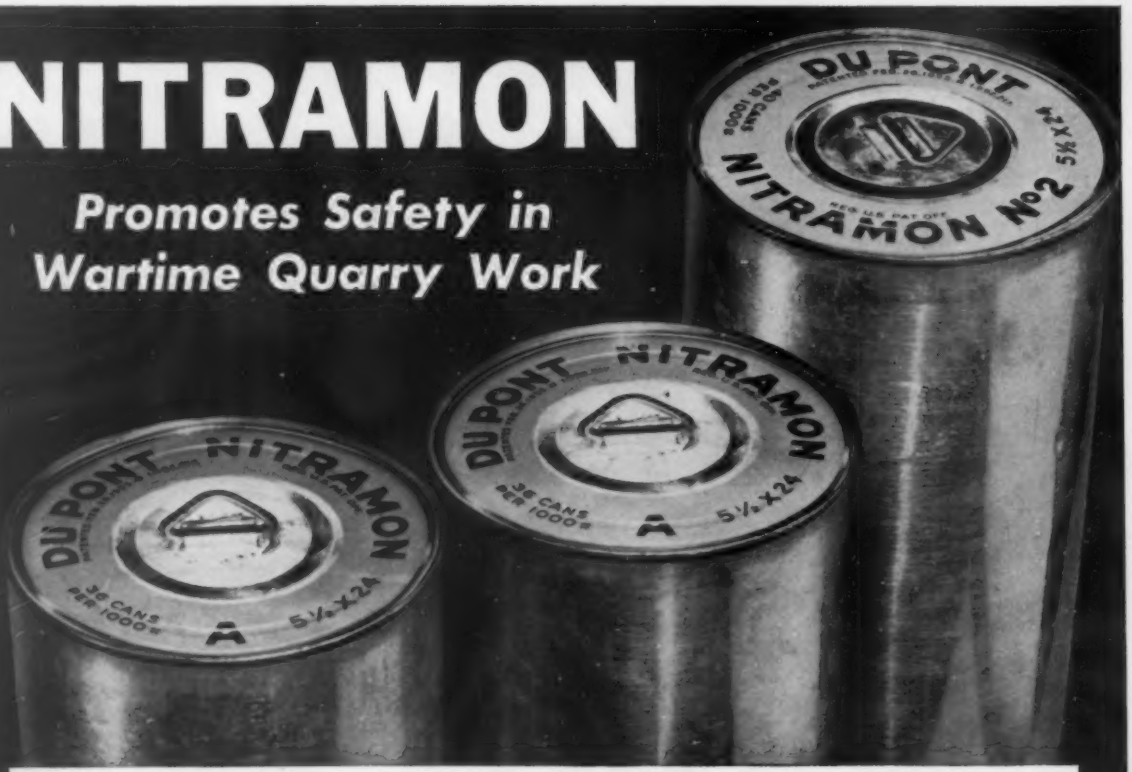
BUDA Low-Pressure DIESELS Prolonged "low-pressure" combustion delivers a smooth, steady power stroke that cuts vibration, saves parts.

the **BUDA** Co.

Harvey (Chicago Suburb) Illinois

NITRAMON

Promotes Safety in Wartime Quarry Work



"Nitramon" is readily detonated by a special primer consisting of "Nitramon" itself and a relatively insensitive high explosive. It is strongly recommended that this primer be used to detonate "Nitramon."

"Nitramon" blasting agent is a mighty welcome wartime ally. It's a real help in promoting safety in quarry blasting operations, because it is both safer to handle and safer to use.

Here is a totally different type of blasting agent. "Nitramon" cannot be detonated by "Primacord," by the strongest of commercial blasting caps, by flame, drill bits or the impact of falling objects. "Nitramon" comes in sealed watertight containers. It is non-headache-producing and non-freezing.

In addition, the use of "Nitramon" often results in appreciable savings in quarry work.

Get the complete "Nitramon" story. Ask your Du Pont representative for the facts. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington, Del.

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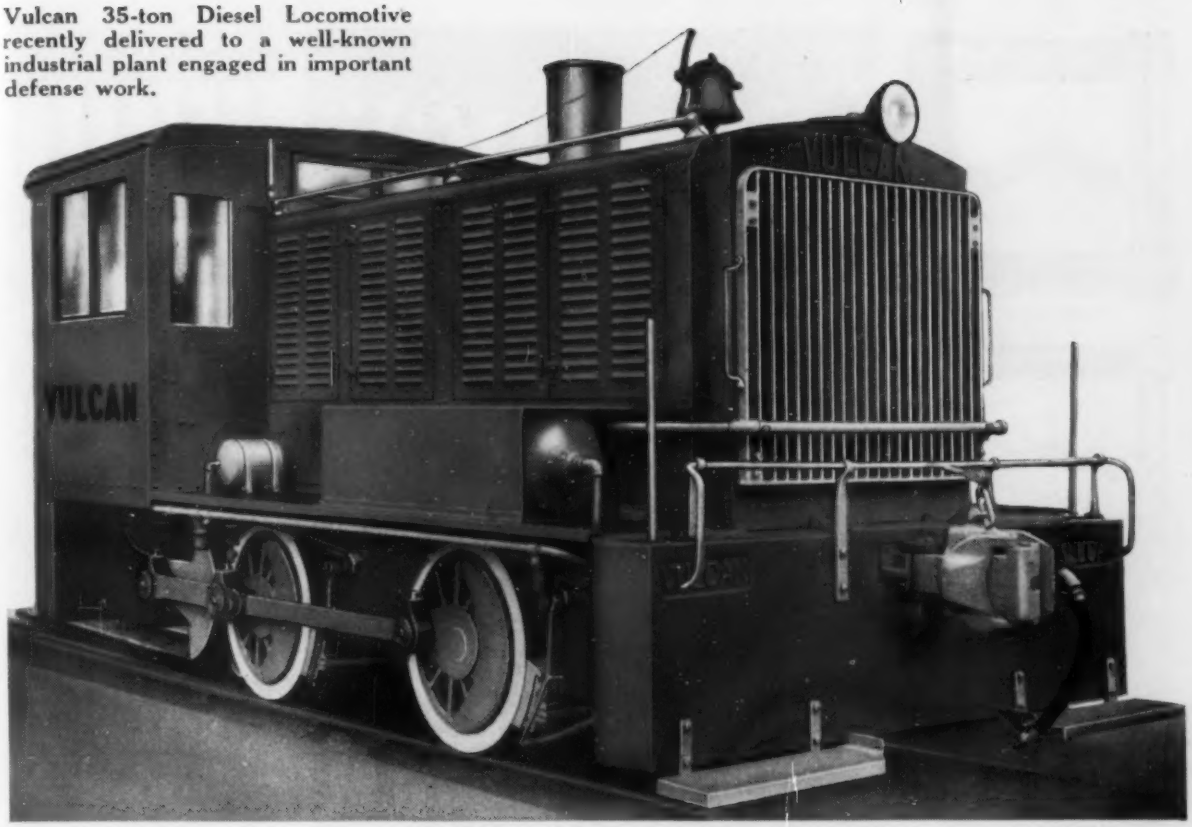
Vulcan 35-ton Diesel Locomotive recently delivered to a well-known industrial plant engaged in important defense work.



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before we'll be able to resume normal business and our present high production of steam, diesel and diesel-electric locomotives for army, navy and defense-plant requirements will leave us better equipped than ever before to serve industrial users. RIGHT NOW our engineers will be glad to figure on your present or future requirements and to give you the fullest-possible benefit of whatever priority rating you may be allowed by the War Production Board.

Remember that a Vulcan locomotive of any kind is always a quality product—built of the very best materials throughout and designed with an extra margin of working capacity that has made them universal favorites among all types of industrial users for more than 70 years. Details on request.

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Constant-mesh, spur-geared transmission with separate final drive and reverse assembly. 6 to 35 tons

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Most modern design and equipment throughout. 25 to 80 tons

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All industrial types and sizes

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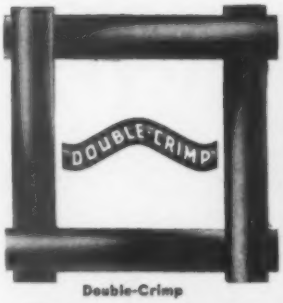
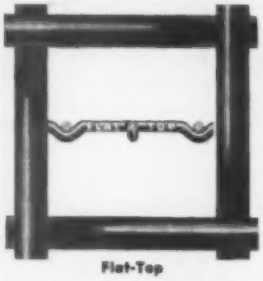


Double-Crimp

Arch-Crimp

Intermediate-Crimp



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Wire Cloths and Screens

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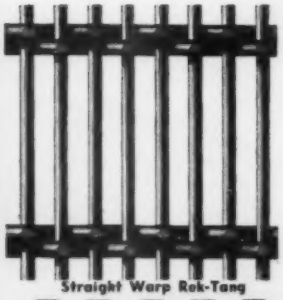
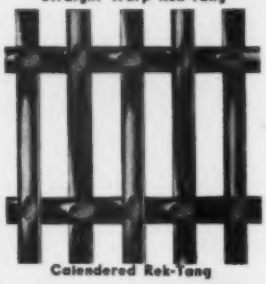
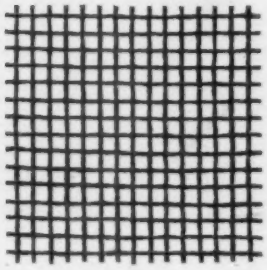
ANY SPECIAL METAL FOR ANY SERVICE



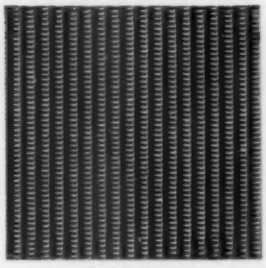
Straight Warp Rek-Tang



Calendered Rek-Tang



Triple Twisted Warp and Fill



Dutch Weave

"Perfect" WEAVES

Arch-Crimp
Coiled
Double-Crimp
Double-Fill
Dutch
Flat-Top
Intermediate-Crimp
Rek-Tang
Selvage-Edge
Straight-Warp
Stranded
Sta-Tru
Triple-Warp
Twilled
Twisted-Fill
Twisted-Warp

"Perfect" PROCESSING

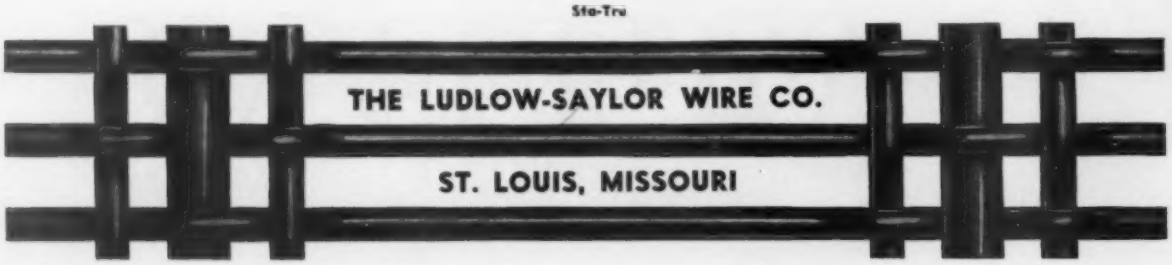
Arc-Welding
Bending
Binding
Brazing
Calendering
Coiling
Crimping
Cutting
Dipping
Dishing
Finishing
Flanging
Flattening
Forming
Framing
Galvanizing
Jointing
Knuckling
Painting
Rolling
Selvaging
Shaping
Shearing
Slitting
Soldering
Spot-Welding
Squaring
Stitching
Tack Welding
Trimming

"Perfect" PRODUCTS

Baskets
Circles
Coils
Cones
Cylinders
Discs
Forms
Leaves
Lengths
Panels
Pieces
Ribbons
Rings
Rolls
Sections
Segments
Strips
Templates

Illustrations show items listed in bold-face type. Other wire cloths and screens will be illustrated in subsequent advertisements of this series.

Sta-Tru

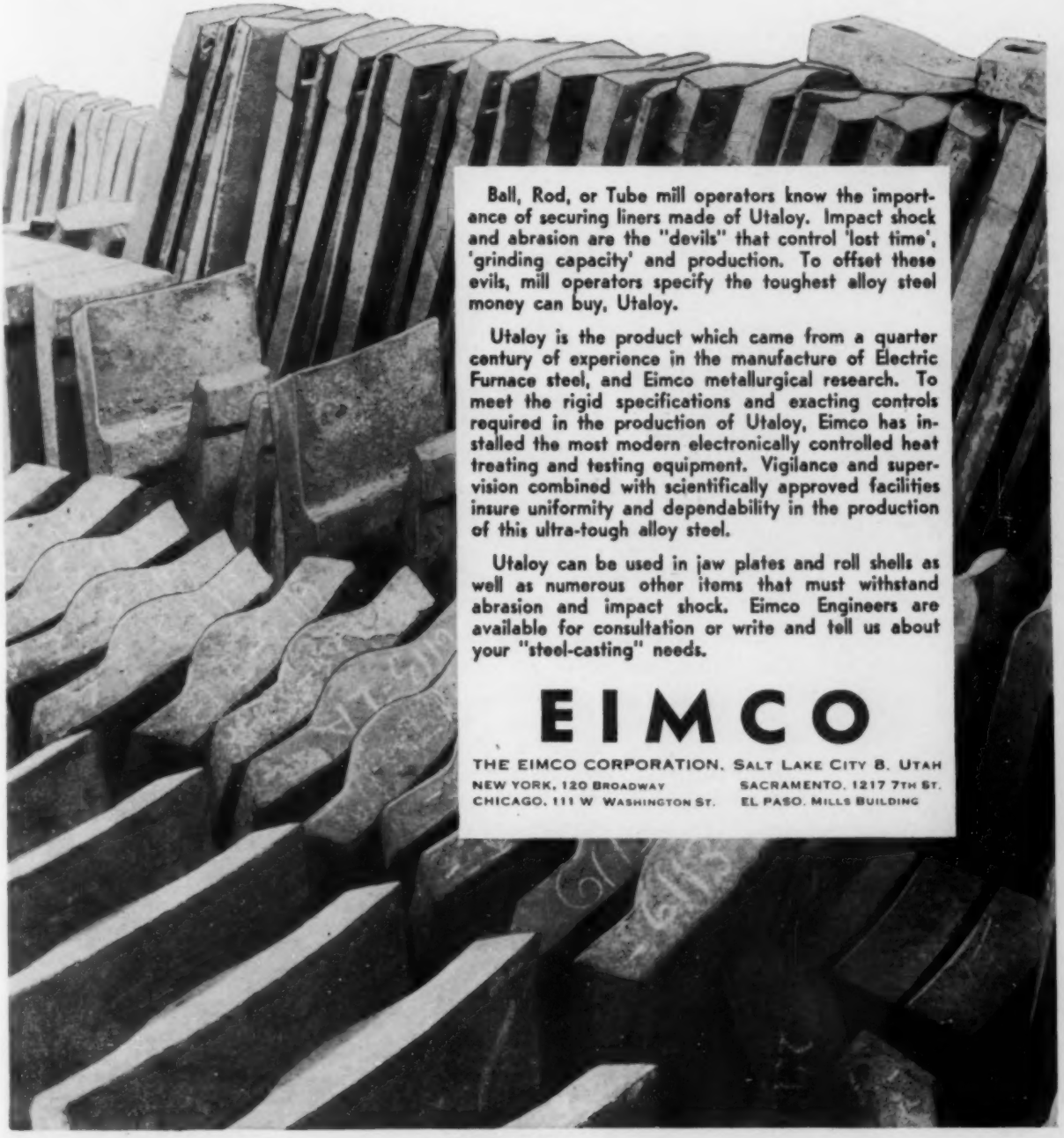


THE LUDLOW-SAYLOR WIRE CO.

ST. LOUIS, MISSOURI

UTALOY

For Ball, Rod, or Tube Mill Liners
A new ultra-tough alloy steel
That resists wear and takes impact shock



Ball, Rod, or Tube mill operators know the importance of securing liners made of Utaloy. Impact shock and abrasion are the "devils" that control 'lost time', 'grinding capacity' and production. To offset these evils, mill operators specify the toughest alloy steel money can buy, Utaloy.

Utaloy is the product which came from a quarter century of experience in the manufacture of Electric Furnace steel, and Eimco metallurgical research. To meet the rigid specifications and exacting controls required in the production of Utaloy, Eimco has installed the most modern electronically controlled heat treating and testing equipment. Vigilance and supervision combined with scientifically approved facilities insure uniformity and dependability in the production of this ultra-tough alloy steel.

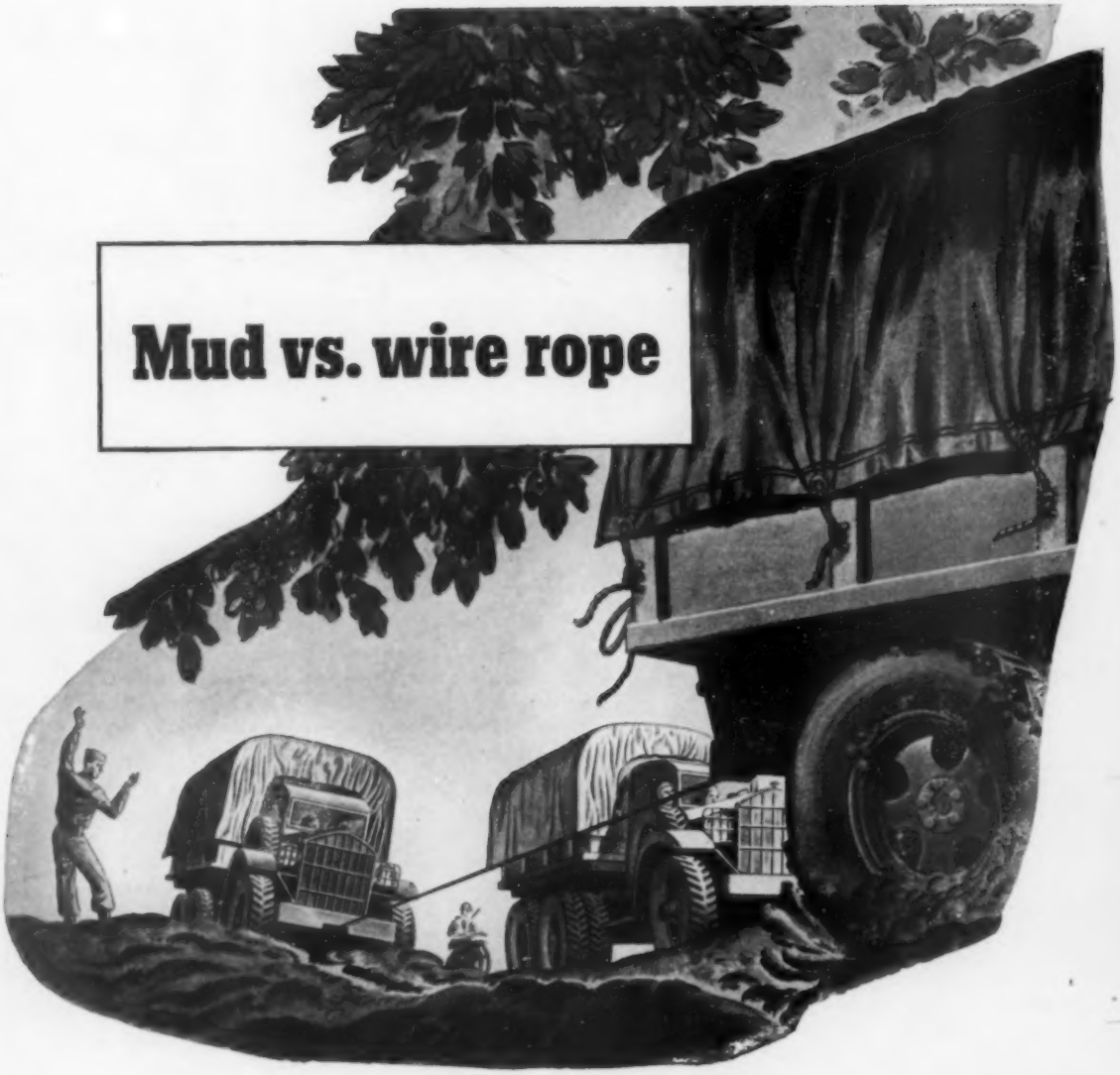
Utaloy can be used in jaw plates and roll shells as well as numerous other items that must withstand abrasion and impact shock. Eimco Engineers are available for consultation or write and tell us about your "steel-casting" needs.

EIMCO

THE EIMCO CORPORATION, SALT LAKE CITY 8, UTAH

NEW YORK, 120 BROADWAY — SACRAMENTO, 1217 7TH ST.

CHICAGO, 111 W WASHINGTON ST. — EL PASO, MILLS BUILDING



Mud vs. wire rope

We can't stop the rains, but we *can* provide a means for pulling stalled jeeps, trucks and tanks out of the clutches of that obstinate and gluey old campaigner, General Mud.

Bethlehem's wire rope mill is producing many thousands of emergency winch cables, carried as standard equipment on trucks and tanks. We make up these cables complete, with fittings and hooks all ready to be used. Millions of feet of Bethlehem wire rope have already gone into this service.

Bethlehem Manufactures Wire Rope for all Purposes

BOMBS AWAY!

Begin with Cedarapids

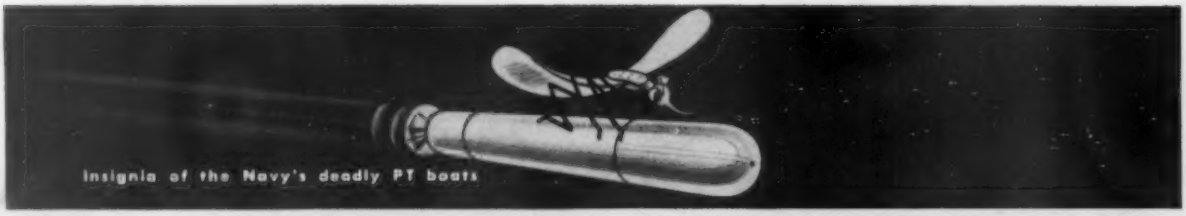
Built by IOWA

INTERMOUNTAIN CONTRACTORS and L. A. YOUNG CONSTRUCTION CO. build 30 IGLOOS A DAY with CEDARAPIDS CRUSHING PLANTS!

Igloos no eskimo will ever live in stretch away over a desert wasteland in the Far West. These innocent buildings house an awful punch for here is one of the first resting places of some of the 1000 lb. bombs destined for Axis cities. Building this great Ordnance depot was a rush job to keep up with the production of war materials. The job called for 30 igloos a day and a peak production of 4450 cu. yds. of material.

To perform a feat like this meant that aggregate production at the crushing plants, the cement delivery, batching, hauling and mixing had to synchronize perfectly and the key plant, which were two Cedarapids Crushing Plants, had to tick hour after hour day and night without a hitch. This is just another of the many "highball jobs" on which Cedarapids equipment has proved its ability to deliver. These are the jobs that we want you to remember when you are faced with post war aggregate producing problems. Cedarapids plants can be engineered for any final size of construction aggregate materials and Iowa can meet your future plans whether it be for crushers, screens, bins, asphalt plants, driers or portable or stationary plant equipment. Now is the time to become acquainted with Cedarapids. Come to Headquarters for Aggregate producing equipment.

IOWA MANUFACTURING COMPANY
CEDAR RAPIDS, IOWA



What makes a mosquito buzz?

Muffled motors roar suddenly as the PT boat starts her sprint. Almost before tracers arch from the enemy cruiser, the Yankee Mosquito knifes in, lays her long, lethal egg and bounces away at a wide open 70 knots. Scratch another Nip cruiser.

Such hit and run fighting demands motors that don't miss. They must hum flawlessly to take a 77-foot cockleshell under enemy guns. And PT motors *don't* miss—RPM DELO helps guarantee that.

Developed to solve the special problems of Diesel lubrication, RPM DELO ends the danger of stuck rings. It actually cleans motors gummed by other oils. RPM DELO's special additives guard bearings against corrosion, minimize sludge, cut wear to a fraction.

If you're interested in slicing repairs as much as 50%, in doubling the time between Diesel overhauls, remember the lubricant that helps make the Navy's Mosquito boats buzz.

ORDER RPM DELO FOR YOUR DIESELS

RPM DELO is marketed under these names:

RPM DELO
Caltex RPM DELO
Kyso RPM DELO
Signal RPM DELO
Sohio RPM DELO
Imperial-RPM DELO
CONCENTRATE

Ask your Diesel engine manufacturer or distributor for the RPM DELO supplier in your vicinity

STANDARD OIL COMPANY OF CALIFORNIA

He does MUCH MORE than MAKE them for the CEMENT industry

HE MANUFACTURES more than 2000 types and sizes of chain belts. That is, however, only a part of his business.

His business is mechanical engineering, the design . . . manufacture . . . application . . . selling and maintenance of special apparatus for transmitting power and handling materials.

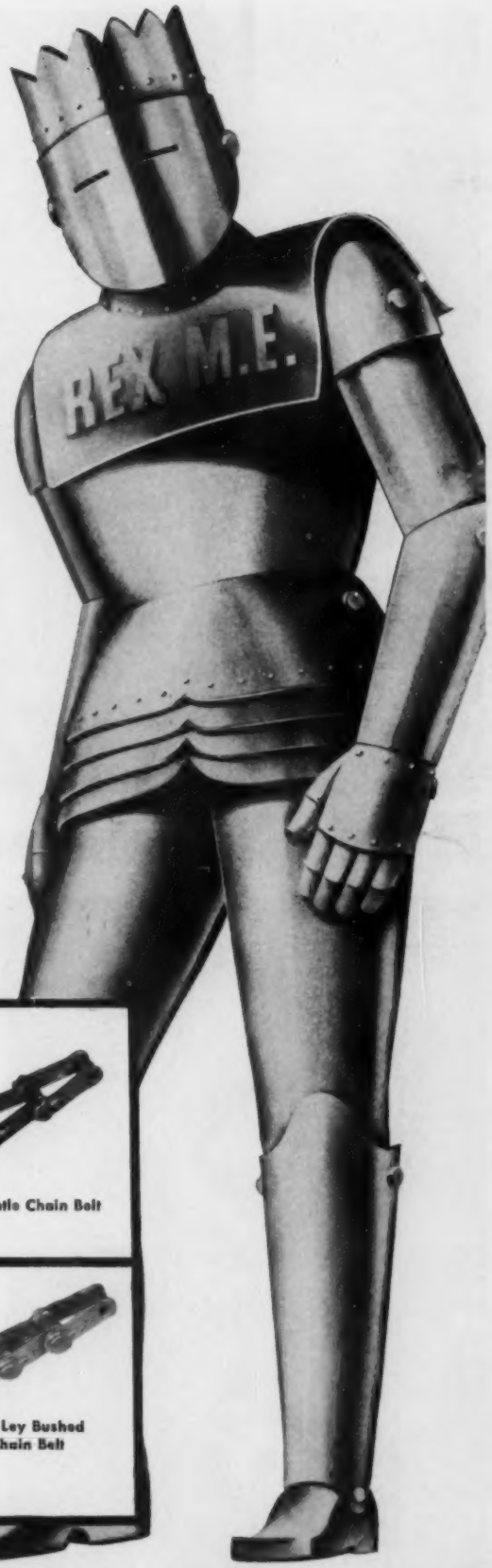
In order to design and manufacture his chain belts, Rex Mechanical Engineering—Rex M. E.—must perform the functions of application and selling. These are in some ways his most important obligations.

Because of the complexity of modern industry, all engineers must seek and get from each other the extensive and intensive knowledge that only specialization can provide.

Application and selling are the technical information services provided by specialists to help analyze difficulties and find the best ways for surmounting them.

For this service Rex Mechanical Engineering—Rex M. E. —maintains a field organization, most of whom have served their apprenticeships in his drafting rooms and plants. For additional counsel, the territorial men call on specialized designing engineers in Milwaukee who have the advantages of national experience.

Through the work of all of these men in many fields, Rex M. E. is learning—and making available—much that is helpful in the great work in which all engineers are engaged, namely, to achieve a maximal result at minimal cost and waste.



REX

Rex Chabelco Steel Chain Belt

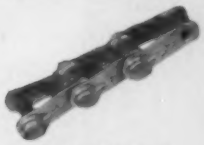
CHAIN BELTS

In more than 2000 sizes and types

Rex Pintle Chain Belt

Rex Roller Chain Belt

Rex Chain Belts which are made in malleable iron are also furnished in Rex Z-Metal, a superior material for cast chain belts. Many other chain belts are made of steel for the heaviest services or highest speeds. There is a Rex chain belt for every drive and conveyor. For further information, write Chain Belt Company, 1649 West Bruce Street, Milwaukee, Wisconsin.



Rex Ley Bushed Chain Belt

CHAIN BELT COMPANY OF MILWAUKEE

Have You Been Misinformed?

★ If it is your understanding that the Dempster-Dumpster system of materials handling is adaptable to hand loading only, then you've been misinformed.

Loading conditions vary in every operation, and although the Dempster-Dumpster is ideal where hand loading is required, it is equally desired in many operations where mechanical loading of bodies is an advantage.

Where distance of haul is short, one Dempster-Dumpster can service several large capacity bodies which are loaded by mechanical shovels. Only a few seconds are required to hoist a Dempster-Dumpster load into carrying position. Dumping is instantaneous. Truck is kept on the run constantly.

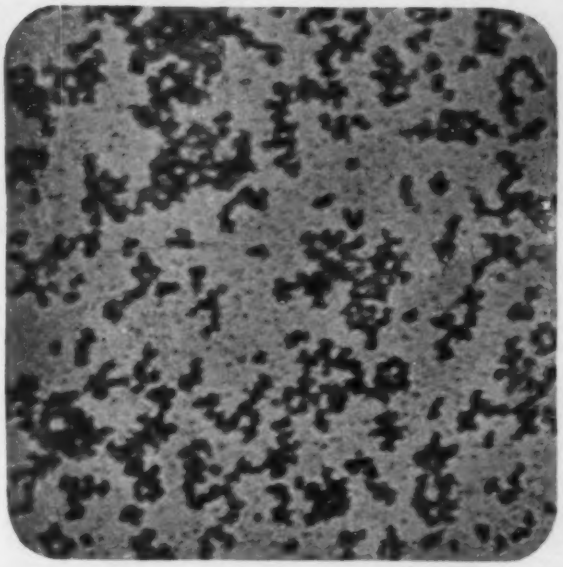
The photos on this page illustrate the loading, hauling and dumping of a mechanical shovel loading operation. No standing idle trucks here, waiting to be loaded. Bodies carry 4 to 5 cu. yds. of material each. Saving trucks, tires, gas and manpower are vital today, and the Dempster-Dumpster is the equipment that is making these essential savings possible. Write for completely illustrated catalog showing how the Dempster-Dumpster will work for you. Dempster Brothers, Inc., 3103 Springdale, Knoxville, Tenn.

DEMPSTER DUMPSTER
TRADE MARK REG.

1 This is the Famous RCA Electron Microscope

With this instrument you can clearly see the structure of objects and particles as small as one-millionth of an inch in diameter!

It permits direct observation and produces sharp, detailed micrographs of particles as small as $\frac{1}{5{,}000{,}000}$th of an inch.



2 This is lime

This microphotograph, made with the RCA Electron Microscope, shows what lime looks like when magnified *seventy thousand* diameters. This is an example of the outstanding value of the RCA Electron Microscope — its extraordinary *resolving* power. With the Electron Microscope you can see particles and details *fifty thousand times smaller* than you can see with the unaided eye!

3 What does this mean to you cement and lime men?

It means that the RCA Electron Microscope gives your laboratory men what they have long and urgently needed — and that is an effective instrument for intelligently investigating the vitally important relation between size, shape, and surfaces of ultra-small particles of your products and their components, and the action of your finished lime or cement in use. Already a number of progressive companies in the rock products industry have equipped their laboratories with this instrument. Write for full information — get the interesting data we will send you regarding this remarkable new tool of modern industrial science.

RCA

RCA ELECTRON MICROSCOPE

Radio Corporation of America, Camden, N. J.

Which of these
GATES V-Belts
Best Fits *YOUR* Needs?

– Steel Cable Belts?
– Rayon Cord Belts?
– Cotton Cord Belts?
– Static Reducing Belts?
– Belts of *Special* Synthetic Rubber?

Phone Your Gates Field Engineer– *He Will TELL You!*

Whenever a drive in your plant gives you even the slightest trouble, it is a good plan to phone the Gates Field Engineer. He is a specialist who *makes a business* of improving drive operation.

For example, it quite frequently happens that one or more drives in a plant will wear out belts faster than seems warranted. In most cases a slight correction in groove angle, an adjustment in tension or, at most, a minor change in drive design will correct the difficulty and save money not only in belt wear but also in increased efficiency of the machine.

At times, however, the service conditions are such that a V-belt of special construction can most profitably be used. Your Gates Field Engineer will *know*—and he can supply a Gates V-belt that is precisely engineered to meet the unusual conditions.

The Gates V-belt of special synthetic rubber is a case in point. During the past five years, Gates has supplied industry with thousands upon thousands of these belts. Under severe conditions of heat and oil, the Gates special synthetic belt actually outwears any natural rubber belt by as much as 230%.

In your particular application, V-belts whose tension members are composed of flexible steel cables—or of rayon cords—may prove to be the most efficient and economical. Static-reducing V-belts may best fit your special need.

In any case, the wisest move you can make is to phone the Gates Field Engineer. He is thoroughly competent to analyze any drive problem. He is completely informed on on the nature and advantages of every type of belt. He will always recommend the practice that will be most efficient and economical for you.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

4310

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
NEW YORK CITY 215-219 Fourth Avenue
ATLANTA, GA. 738 C. & S. National Bank Building
LOS ANGELES, CAL. 2240 East Washington Boulevard
DENVER, COLO. 999 South Broadway
DALLAS, TEXAS 2213 Griffin Street
PORTLAND, ORE. 333 N. W. 5th Avenue
SAN FRANCISCO, CAL. 1090 Bryant Street

MAKING TRACKS TOWARD BETTER SHOVEL MAINTENANCE!

HERE'S one of today's outstanding maintenance practices performed in construction camps, rock quarries, mines, and wherever shovels are essential!

Track pads carry heavy loads, are eventually ground away and cut to pieces by hard, sharp earth, sand and rock formations. Under such working conditions track pads are frequently salvaged by building back to original size with high carbon electrodes.

But the use of high carbon alone is only *one step* in a profitable salvaging operation . . . the addition of a single layer of coated Stoody Self-Hardening over the preliminary build-up increases pad life 150%! The difference in cost between high carbon alone and Stoody Self-Hardening is negligible compared to the increased life and savings in down time.

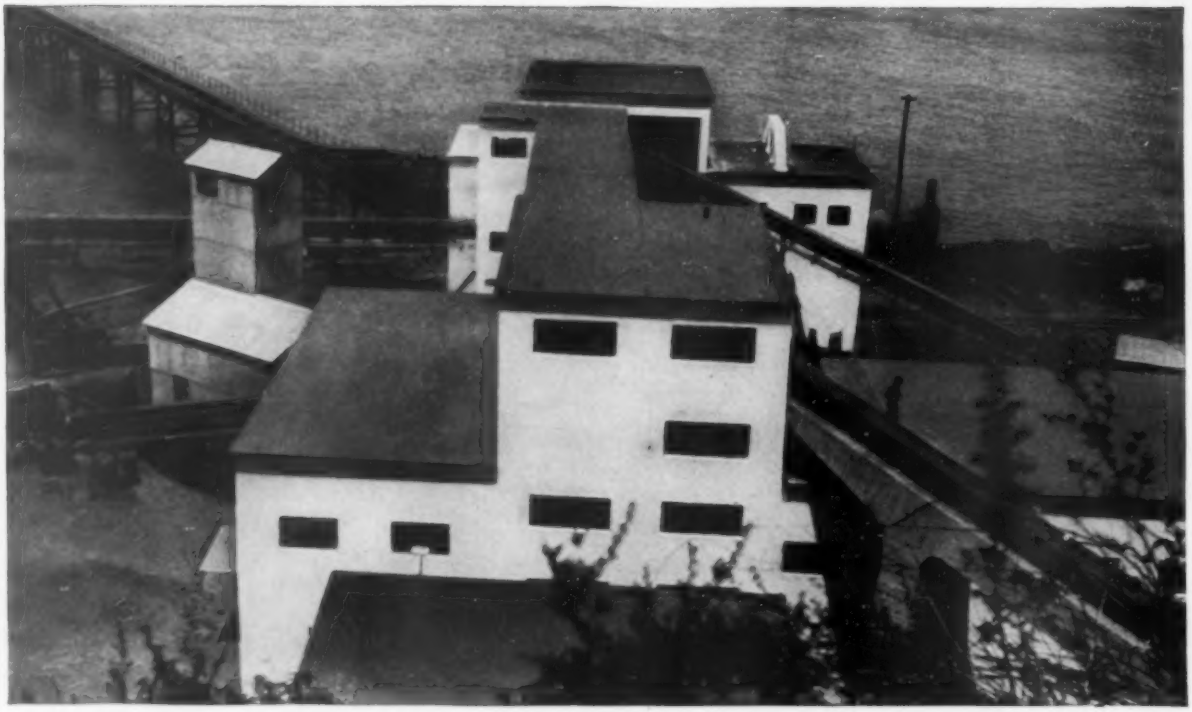
Reclaiming costs are extremely moderate . . . using a 2½ yard shovel for an example, total cost of 54 replacement pads is approximately $1700. Old pads in an average case were completely reclaimed and hard-faced for $300—less than 1/5 the original cost with 1½ times the service life!
A trial order of 250 lbs. of Stoody Self-Hardening is ample to hard-face all pads on an average shovel (up to 5 yard capacity). Have your welder hard-face these as a test. Compare the life of pads hard-faced with Stoody Self-Hardening with those reclaimed with other electrodes, and convince yourself.

HARDFACING PROCEDURE: Lay track out flat on floor and rebuild pads to original shape and size with either Coated Stoody Self-Hardening or Stoody High Carbon. Peen deposit of Stoody Self-Hardening while still at red heat. The sketch illustrates the application.

STOODY COMPANY
1129 WEST SLAUSON AVE. • WHITTIER, CALIFORNIA

STOODY HARD-FACING ALLOYS

Stop wear . . . Eliminate Repair



A COMPLEX CONVEYOR SYSTEM *MADE SIMPLE*

by thorough engineering

In Coronel, Chile, a highly intricate and elaborate conveyor system was recently completed . . . designed and manufactured by Robins.

The materials handled include coal and rock. Sub-surface coal mining is carried on 1,200 feet below the earth's surface and extending 2¼ miles out under the sea. At this level, the mined material is brought to a central dumping station by a train of fifty 2-ton cars. The cars are automatically upturned, dumped, contents weighed and righted by a Robins Car Dumper . . . *without uncoupling the cars.*

The material falls into a Track Hopper leading to a Shaking Feeder which delivers it, at uniform rate, to the first of a series of 8 conveyors, one of which is 3,880 feet long—the aggregate of all being more than two miles long extending up to and along the earth's surface.

The last of these conveyors delivers the material to a screening station. Here fines and refuse are removed and the coal is sized on a series of Robins Gyrex Screens. The fines and segregated sizes are then conveyed to storage, or to railroad cars or to ships, as desired—in any combination of fines and sizes. When delivered to ships, the material travels along a 1,000-foot Dock Conveyor to reach a Shuttle Conveyor which is mounted in a hinged cradle so that the loading operations may accommodate changing tides and diverse drafts of ships.

This installation indicates how Robins engineering overcomes complex problems—reducing them to an efficient, ingenious, simple series of operations. Perhaps you are faced with a difficult conveyor problem. Your inquiry is welcome. Write Dept. RP-10 for full details and, if you like, summarize your problems and requirements. We can work directly with you or collaborate with your own engineering consultants.

ENGINEERS • **MANUFACTURERS** • ERECTORS

ROBINS CONVEYORS INCORPORATED

Founded in 1896 as Robins Conveying Belt Co.

PASSAIC • NEW JERSEY

ROBINS *makes:* BELT CONVEYORS • COAL AND ORE BRIDGES • BUCKET ELEVATORS • CAR AND BARGE HAULS • CAR DUMPERS • CAR RETARDERS • CASTINGS • CHUTES • CONVEYOR IDLERS AND PULLEYS • CRUSHERS • FEEDERS • FOUNDRY SHAKEOUTS • GATES • GEARS • GRAB BUCKETS • PIVOTED BUCKET CONVEYORS • VIBRATING SCREENS • SCREEN CLOTH • SELF-UNLOADING BOAT MECHANISMS • SKIP HOISTS • STORAGE AND RECLAIMING MACHINES AND SYSTEMS • TAKEUPS • LOADING AND UNLOADING TOWERS • TRIPPERS • WEIGH LARRIES • WINCHES • WINDLASSES

FOR MATERIAL AID IN MATERIALS HANDLING . . . . . ***It's ROBINS***

MATERIALS HANDLING MACHINERY

ROCK PRODUCTS

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Editor-in-Chief

BROR NORDBERG, *Editor*
WALTER B. LENHART, *Associate Editor*
RALPH S. TORGERSON, *Managing Editor*

CONTRIBUTING EDITORS—VICTOR J. AZBE, *St. Louis, Mo.*; DR. F. O. ANDEREGG, *Newark, Ohio*

TRADEPRESS PUBLISHING CORPORATION, 309 W. JACKSON BLVD., CHICAGO, ILLINOIS

LET'S BUILD REALLY GOOD HIGHWAYS!

THE EDITOR'S MEMORY and experience go back to the early days of paved country highways. As an associate editor of *Engineering News* he was a close student of the early construction of concrete pavements. Like all engineering students of his generation, his college course in highway construction had laid great emphasis on *drainage*. Experience with waterbound and bituminous macadam pavements and gravel roads had proved there was no substitute for adequate drainage in the maintenance of highways.

An elevated, crowned roadbed, with deep side ditches was the ordinary type of construction, with Telford base (large stones) or subgrade tile drains for especially soft parts. When the automobile came, side ditches became dangerous, and that type of construction was abandoned. Then came the promoters of concrete pavements, who intimated that these needed no subdrainage. We believed then, and we still believe, that when the portland cement industry advocated, or at least permitted without protest, the laying of miles of concrete pavement without adequate subdrainage it did highway engineering a disservice.

Our study of early concrete pavements showed that those laid on sand in Long Island and New Jersey were definitely better than others not so fortunately located. Remembering our earlier education on the importance of drainage, in an editorial in *Engineering News*, some 30-odd years ago, attention was called to this. What railway engineer, we asked, would lay his track on mud or top soil, regardless of how heavy the rails and track structure? Wasn't there still a parallel between highway maintenance and railway track maintenance? Wasn't ballast under a concrete pavement just as important as under a railway track?

Needless to add, our youthful effort to influence highway design made no impression. Highway engineers, perhaps for political reasons to get "mileage," have paid very little attention to drainage. They have tried all kinds of pavement slab design, added steel reinforcement, new kinds of cement; condemned alternately the sand, the coarse aggregate and the cement. Nevertheless, there are still conspicuous pavement failures; and we think they are caused, to a considrable extent, by lack of adequate drainage.

Thirty-odd years ago we suggested, in the *Engineering News* editorial, the use of a foot or more of sand and gravel or crushed stone ballast under concrete pavement slabs. That suggestion can not be attributed to a desire to help our present friends. We thought we knew something about highway design, and in spite of the higher cost of the pavement we believed the ballast a good investment.

Our memory of this has been awakened by listening to a discussion of some of the unfortunate experiences in recent years with "bad" chert aggregates in concrete highway pavements. It appears that if water is kept from seeping into these pavements, and they once thoroughly dry out, no bad results are apparent. Stanton Walker, of the National Sand and Gravel Association, when inspecting such pavements, said he could almost invariably tell in advance where he would find disintegrated stretches. They were in cuts or on hillsides or other places where it was obvious water seeped into the pavement from below. Pavements with thickened edges only made the trouble worse by holding the water that accumulated under the slab.

Forward-looking sand and gravel producers believe that many cases of concrete highway disintegration would be cured by adequate drainage under the slab. They suggest a bedding of a few inches of sand or torpedo gravel under the slab. That isn't enough. We still believe in the parallel of railway ballast.

The reason we have given so much personal reminiscence is to convince the reader that we do not advocate "pavement ballast" merely to promote the desires of sand, gravel, slag and crushed stone producers. We thought of it first—and 30-odd years ago.

There is a much better chance now that highway engineers will give consideration to subdrainage. The practice has been revived in the construction of airport runways. An interesting contribution on the subject has recently been made by T. B. McClelland, research engineer, Joint Highway Research Project, Purdue University. As he points out, interest in highway drainage has been stimulated of late by engineering knowledge of pedology—the science of soils. In a paper published by the University in the proceedings of the 29th Annual Road School, the author shows how pedology is applied to drainage.

In commenting on Mr. McClelland's paper, N. F. Schafer, superintendent of maintenance, State Highway Commission of Indiana, said:—"a subject that is often neglected. We know that a road will last longer if well drained, but first costs often cause us to follow the path of least resistance and eliminate certain expensive drainage installations—." Ballast may prove the cheapest, most efficient method of drainage. Longer life may more than compensate for greater cost.

Nathan C. Rockwood

NEWS ABOUT PEOPLE

Association Engineer

H. HERSHEY MILLER, for the past three years resident engineer of the Pennsylvania Sand and Gravel Producers' Association, has joined the

H. Hershey Miller

staff of the Calcium Chloride Association, and will serve the industry as a counsellor and engineer representative in the concrete field. Mr. Miller has had 30 years experience in the highway engineering field and for many years was chief materials engineer for the Pennsylvania Department of Highways and later testing engineer for the Pennsylvania Turnpike Commission.

Responsibilities Increased For Alex Foster

WARNER Co., Philadelphia,, Penn., has announced that all operating activities with the exception of the Bellefonte Division will be directed by Alexander Foster, Jr. This means that in addition to all retail yards, maintenance departments, marine operations, and the Van Sciver and Terminal Plants, Mr. Foster will also have the direction of operations of the Cedar Hollow and McCoy Plants. The Bellefonte Division continues under John Curtin, Jr., as heretofore.

A new position, to be called General Plants Manager (applying to Eastern production units), will be established in Mr. Foster's division, and Herbert J. Whitten will be appointed thereto. Mr. Whitten's authority will cover the Van Sciver, Terminal, Cedar Hollow, and McCoy Plants. Franklin K. Wills, General Superintendent of the Van Sciver-Terminal Plants, and J. G. Wilson, General Superintendent of the Cedar Hollow-McCoy Plants will report direct to Mr. Whitten on all operating matters. Herman Egner, Superintendent of the Christian Street Yard, will become General Superintendent

Alex Foster, Jr.

of Philadelphia Yards and Trucking, and will report direct to Mr. Foster.

Lawrence L. Connor will be appointed Superintendent of the Christian Street Yard.

B. M. Thomas, General Superintendent of Marine Operations, will report direct to Mr. Foster.

The Berks Street Maintenance Departments (not including Berks Street Truck Shop) will report direct to Mr. Whitten.

By means of the above changes Irving Warner, vice-president, who has been seriously ill, will be relieved of all general operating supervision of the Cedar Hollow-McCoy Plants and will concentrate on the following duties of all Warner plants, including the Bellefonte Division: (a) All engineering and construction. (b) Management of new plants until they have been thoroughly tuned up to good operating condition for transfer to the regular operating department affected, when notice of such transfer date will be officially given. (c) All engineering studies for plant improvements and expansions. (d) Studies and recommendations to operating departments for possible improvement in operating methods.

Master of Ceremonies

OTHO M. GRAVES, president, General Crushed Stone Co., Easton, Penn., acted as Master of Ceremonies at the Army-Navy "E" award to the Traylor Engineering and Manufacturing Co., Allentown, Penn., last April. The current issue of *The Traylorian*, house organ of the Traylor company contains a very interesting verbatim report of the ceremonies. Mr. Graves' many friends will enjoy reading this, if *The Traylorian* is well distributed. As was to be expected, he put a lot of human interest into it.

As the climax, the Navy Commander Craig said in part: "Before introducing Sergeant Toomey (who distributed the "E" buttons) you should all know of the action in which he received his wounds. On September 7, 1942, as a flight engineer in one of our United States Army Flying Fortresses, while flying over Rotterdam, Holland, raiding a huge Nazi submarine base, he was

Otho Graves Introducing Sgt. Toomey

shot and injured by machine gun and cannon fire. We are very fortunate in having with us this young man who is now going to give the following gentlemen, as representatives of the employees, their pins."

This done, Mr. Graves said: "To my mind it is striking evidence of the democracy of America that the management of this company desires two of its oldest employees, "Charley" Patten and Harvey Ihrie, to join with the two chief executive officers in receiving these buttons.

"I hesitate to depart from the instructions given me by the representatives of the Army and Navy, but I observed that as the wounded Sergeant stood, he was not visible to the audience. May I not ask the Sergeant to step forward to let the audience see him?"

(*Applause*)

Chemist Retires

THOMAS A. HICKS, general chemist of the Universal Atlas Cement Co., New York, N. Y., has retired from active duty after 38 years of continuous service with the company. Mr. Hicks graduated in chemistry from the Case School of Applied Science in 1896. He became chief chemist of the Art Portland Cement Co. at Ransoms, Ohio, in 1897 and of the Whitehall Portland Cement Co. at Cementon, Penn., in 1900. He started with the Atlas Portland Cement Co. as chief chemist at its Northampton, Penn., plant in 1904 and became chief chemist for the Atlas company in 1916 and for the Universal Atlas company in 1930. He was in charge of the original investigations on the development of Atlas White and Atlas Lumnite cements, and closely associated with the original manufacture of Unaflo oil-well cement, Atlas high-early-strength cement, and the various types of modified cements. Mr. Hicks will make his home in Sandusky, Ohio.

Thomas A. Hicks

Retires

EDMUND D. BARRY, manager industrial relations, Universal Atlas Cement Co., Chicago, Ill., and Pittsburgh, Penn., has retired after 40 years continuous service with the company. GORDON C. HUTH, assistant manager industrial relations, has been named as his successor. Mr. Barry, a mechanical engineering graduate of Massachusetts Institute of Technology, devoted several years to ship building before he joined the cement department of the Illinois Steel Co. in 1903. Two years later he went to Pittsburgh for work in connection with the construction of the new plant at Universal, Penn., of which he subsequently became superintendent. In 1930 he was appointed assistant operating manager of the entire company and in 1937 was appointed manager industrial relations, from which position he is now retiring.

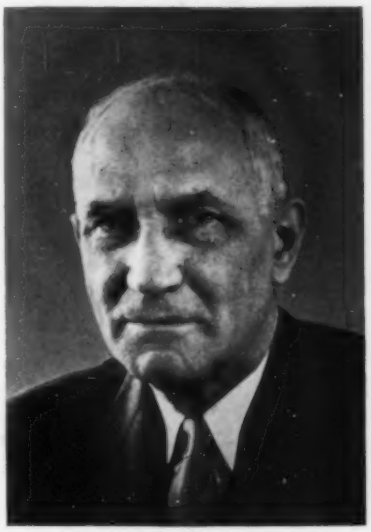

Photo by Richard Averill Smith
Edmund D. Barry

Mr. Huth started with the company in 1915 as machinist helper at the Duluth plant. After working in the chemical laboratory and in the safety and labor department, he became supervisor of safety and labor in 1919. In 1930 he was appointed manager of safety and casualty for the entire company and become assistant manager industrial relations in 1937. After serving several years as assistant director of industrial relations and as safety director of the U. S. Steel Corp. of Delaware, he rejoined the Universal Atlas Cement Co. in 1941 as assistant manager of industrial relations, now becoming manager of this department upon the retirement of Mr. Barry.

Photo by Kalden-Keystone
Gordon C. Huth

Kelley Island Appointments

J. E. BRUNNER, superintendent of the White Rock plant of The Kelley Island Lime and Transport Co., Ceveland, Ohio, has been made general superintendent of lime plants. Mr. Brunner first became associated with the company in 1901 at the Marblehead plant. LOUIS E. SMITH has been appointed superintendent of the plant at Genoa, Ohio, and GEORGE CLEZIE of Buffalo, N. Y., will succeed Mr. Smith as superintendent of the Marblehead plant.

In Service

CALVIN C. PURNELL, personnel manager at the Bellefonte plant of Warner Company, Philadelphia, Penn., has been commissioned an Ensign in the United States Navy, and JOHN W. SMITH, assistant superintendent of Plant 19 at Bellefonte has joined the Seabees (Construction Battalion).

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H. S. MATTIMORE, formerly engineer of materials, Pennsylvania State Highway Department, Harrisburg, Penn., is now senior civil engineer, Civil Engineering Corps., U. S. Navy, Wilmington, N. C.

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ROBERT HOMER, formerly managing editor of Warner News, house organ of Warner Company, Philadelphia, Penn., is now in Africa with the United States Army.

Rejoins Dewey & Almy

FRANCIS MCADAM, Chief of the Non-Metallic Section of the War Production Board, Building Materials Division, which controlled the manufac-

Francis McAdam

ture and distribution of portland cement, ready-mixed concrete, concrete products, sand and gravel, gypsum, rock wool, insulating board, asphalt roofing, and asphalt siding, has rejoined the technical sales force of the Dewey and Almy Chemical Co., Cambridge, Mass. This announcement was made by Charles Almy, vice-president of the company. Mr. McAdam has completed his job with the War Production Board, now that the emergency demand for increased production and distribution of concrete materials has passed, and feels that he can properly return to private business to serve the cement and concrete field.

Universal Atlas Changes

G. L. Lindsay, engineer of tests, Universal Atlas Cement Co., New York, N. Y., has been appointed assistant director of tests and research. F. P. DIENER, assistant general chemist, is now chemical engineer, succeeding T. A. Hicks, general chemist, who has retired, and C. L. DAVIS, assistant engineer of tests, has been named engineer of tests. Mr. Lindsay has been with the company for 25 years, starting as assistant chemist at the Duluth plant following his graduation from the University of Minnesota. Mr. Diener, a graduate of Lehigh University with a degree of chemical engineer, started with the company as an analytical chemist in the Northampton plant in 1924. Mr. Davis is a civil engineering graduate of the University of Michigan. He became associated with the company in 1930 as an engineer in the Inspection Bureau.

In the Army

JAMES C. GRIFFIN, formerly plant engineer for the Marquette Cement Manufacturing Co. at the Des Moines, Iowa, plant, is now a 1st Lieutenant in the Sanitary Corps of the U. S. Army.

Marblehead Promotion

WALLACE E. WING, chemical engineer, Marblehead Lime Co., Chicago, Ill., has been named assistant vice-president. Mr. Wing has been employed by the lime industry since

Wallace E. Wing

his graduation from Ohio State University in 1922. He has covered all phases of construction, chemical control, research and production in the industry. An article by Mr. Wing, entitled "Lime as a Chemical Raw Material" was published in the May and June, 1942, issues of *Chemical Industries*.

Named Talc Director

HAROLD GERMAN of New York City has been named a director of the W. H. Loomis Talc Corp., Gouverneur, N. Y. Other members of the directorate are: Joseph Baumert of Antwerp; Willis H. Loomis, Mrs. W. H. Loomis and A. Prescott Loomis of Gouverneur; Dr. Stanley W. Sayer of Gouverneur; Charles M. Tait of Canton; Charles Walton of Lansford, Penn., and Capt. Frederick Wemyss, now with the Army in California. Officers of the corporation now are: Willis H. Loomis, president and treasurer; A. Prescott Loomis, vice-president and assistant treasurer; Joseph Baumert, secretary.

News from Sweden

NILS DANIELSEN, technical director and manager of Skanska Cementaktiebolaget, has been appointed manager of Uddeholms Aktiebolag. His present address is Uddeholm, Sweden.

Lime Authority Retires

WARREN E. EMLEY, formerly chief of the lime, gypsum and sand-lime brick section of the National Bureau of Standards, Washington, D. C., and well known in the lime industry, has retired after more than 30 years' service. At the time of his retirement Mr. Emley was chief of the Bureau's Organic and Fibrous Materials Division. For a year and a half in 1917-18 he was assistant to the president of the Riverton Lime and Stone Co. and geologist for the Air Nitrates Corp.

Legion of Merit Award

CARL L. MORRIS, who was an engineer for the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., before entering the Army, and now holds the rank of Major, was recently awarded the Legion of Merit in Africa in recognition of his work on an important and dangerous mission. The mission was undertaken after others said it could not be done and refused to try. Major Morris is a graduate of the Colorado School of Mines.

Carl L. Morris

Elected Editors' President

E. J. GOES, advertising manager for the Koehring Corp., Milwaukee, Wis., has been elected president of the newly organized Editors' Association of Milwaukee, comprising industrial officials interested in house organ work and promotion. VAN B. HOPPER, advertising manager of the Louis Allis Co. is vice-president; DOROTHY ACKERET, Pressed Steel Tank Co., secretary; CHARLES PETRI, Falk Corp.; treasurer, and JOHN MORAVEC, JR., Bucyrus-Erie Co., director.

Talc Advisory Chairman

EUGENE W. MAGNUS, vice-president of the Eastern Magnesia Talc Co., Inc., Burlington, Vt., has been named chairman of the talc industry Advisory Committee which is making a study of a proposed price regulation covering manufacturers' sales of talc, pyrophyllite and ground soapstone. The committee members represent New York, Maryland, North Carolina, and California, the talc producing areas of the country.

Studies Aggregates

HARRY J. KNOLLMAN, recently with the Edward Orton, Jr. Ceramic Foundation as ceramic research technologist, is now at the engineering experiment station of The Ohio State University, working on the development of a light-weight aggregate for Cinder Block, Inc., of Roanoke, Va. Mr. Knollman is a graduate of the ceramic engineering department at Ohio State, and has had extensive experience in the ceramic and economic fields.

Senior Geologist

RICHARD M. FOOSE, associate geologist on the staff of the Pennsylvania Geological Survey, has been promoted to senior geologist. He is in charge of all strategic minerals investigations in Pennsylvania.

Ready-Mix Products Advisory Committee

G. D. WILLIMSON, president, Valley Concrete Pipe & Products Co., Yuba City, Calif., has been appointed a member of the Industry Advisory Committee for Ready-Mixed Concrete and Concrete Products. Other members of the committee are: J. W. Porter, vice-president, Gifford-Hill Pipe Co., Dallas, Texas; Deane R. Lynde, president, Cinder Concrete Products, Inc., Denver, Colo.; H. F. Thomson, vice-president, General Material Co., St. Louis, Mo.; Roy N. McCandless, president, Cinder Block, Inc., Detroit, Mich.; Walter Manhardt, president, Best Block Co., Milwaukee, Wis.; Clarence E. Ehle, superintendent, The Cleveland Builders Supply Co., Metropolitan Concrete Division, Cleveland, Ohio; W. E. Corbett, owner, Corbett Concrete Pipe Co., Milford, Mass.; H. H. Longenecker, president, Penn Building Block Co., Primrose, Delaware County, Penn.; O. H. Miller, president, Choctaw Culvert & Machinery Co., Memphis, Tenn.; R. G. Williams, production manager, Maule Industries, Miami, Fla.; John S. Chase, president, Chase Building Products, Inc., Fort Worth, Texas; L. D. Bailey, president, The Cretox Companies, Elk River, Minn.; Paul P. Bird, president, Boston Sand and Gravel Co., Cambridge, Mass.; M. L. White, president, Hollostone Co., North Hollywood, Calif.; H. W. Bush, vice-president, Multiplex Concrete Co., Inc., East Orange, N. J.; L. G. Young, vice-president, The Geo. Rackle & Sons Co., Cleveland, Ohio; E. E. Brainard, treasurer, Lock Joint Pipe Co., Ampere, N. J.; Joseph H. Dixey, vice-president, Transit-Mix Corp., New York, N. Y.; Herbert O. Jahncke, manager, Jahncke Service, Inc., New Orleans, La.; and H. A. Weigand, chief engineer, California Concrete Products Co., San Jose, Calif.

Testing Director

DR. RAY B. CREPPS, director of Purdue University's materials testing laboratory, has joined the Owens-Corning Fiberglas Corp. as director of the testing division of the Company's research laboratories at Newark, Ohio. He will be in charge of a new testing laboratory to be completed this fall. Under the direction of James Slayter, vice-president in charge of research, Dr. Crepps will be responsible for all tests of fiberglas materials, both in the development and finished product stages. Nearly 100 percent of the entire production of fiberglas is devoted to war uses.

Completes Mine Job

GEORGE A. MORRISON, mining engineer, Akron, Ohio, has completed his contract with the Columbia Chemical Division of the Pittsburgh Plate Glass Co. at their Barberton, Ohio, plant. Two shafts were sunk and a modern mine developed for the mechanical loading of limestone.

New Sales Managers

FRANK P. HOOVER has been appointed assistant sales manager of the Monarch Cement Co., Humboldt, Kan., and M. H. MILLER has been made district sales manager at Wichita, Kan.

Visitors from China

MELVIN H. BAKER, president of the National Gypsum Co., Buffalo, N. Y., recently played host to DR. YU LIN HSI, member of the Peoples Political Council of Chungking, China and an envoy of Generalissmo Chiang Kai-shek, when Dr. Hsi visited the administrative offices of the company and the gypsum board plant at Clarence Center while a guest of the City of Buffalo. YAO TUNG, mechanical engineer of Chungking, accompanied Dr. Hsi.

Left to right: Dr. Yu Lin Hsi, Melvin H. Baker, and Yao Tung

Motor Cooler

WHENEVER A MOTOR runs hot at a large western operation, shut-downs and delays are prevented by the use

Portable blower keeps hot motor in service until convenient to shut down for a more permanent repair

of a portable home-made blower that operates at relatively low speed. The unit is driven by a 2-hp. motor by a "V" belt. The rig may not be much to look at, but many hot motors have been kept in operation until it was convenient to make a more permanent repair.

Cutting Wire Rope

USERS OF WIRE ROPE in the rock products industries can take a lesson from the timber operators in Oregon and Washington where modern high speed timbering is done with many novel devices, all of which use wire rope from 3 in. in diameter to ⅜ in. Whenever these men wish to cut a piece of wire rope they use an ax. The double-bladed ax so common in the woods is "socked" into a convenient stump. The wire rope is laid across the other bit and with a hammer, striking directly on the cable itself—the job is quickly done. Most of the crews have a "single jack" hammer that has been placed in a fire and the case hardening of its face overcome. This softens the steel

Ends of wire rope welded to prevent ragged edges

in the hammer so that very little dulling is done on the bit of the ax. If no such special hammer is available, then they use the side of the hammer's face. If the wire rope is not preformed some method of tying the ends must be done or else a ragged end results.

On the wire rope of larger diameter —and if not preformed—it can be cut with the oxy-acetylene cutting torch and the ends welded so that the strands will not "run" as shown in the illustration.

Belt Protection

IT HAS BEEN ESTIMATED that the cost of delivering sand and gravel from the washing plant near Redding, Calif., to the Shasta dam over the "rubber railroad"—the longest belt

Reserve supply of conveyor belting kept under cover at large sand and gravel plant

conveyor in the world, is about one-half what it would have been had the aggregate been shipped by rail. The Goodyear belts used in the system are not just ordinary belting but are treated for mildew protection, for in that vicinity the rainfall runs up to 112 in. The belts are also protected by pneumatic loading cushions that guard the belts from chunks of rock that weigh almost a ton. Special counterweight control with corrugated head and tail pulley, also of rubber, had to be used to prevent slippage during the rainy season. Careful attention to lubrication of the carrier and returns rolls over this system contributed to the low delivery cost.

Another factor was to have ample spare belting on hand at all times for all the conveyors used. (The ten-mile installation has received the most comment in print, but there are many other conveyor systems in the plant itself and from pit to plant.) Large stocks of spare parts and belting are evidenced by the illustration where several miles of spare belting is to be seen. The rolls shown in front, which are uncrated, contain 1265 feet of 36-in. Goodyear belting. In the background are about eight other rolls of about that size—more belting than most operators use.

Aggregate Testing Screen

AT ANY GOVERNMENT PROJECT under the Bureau of Reclamation, testing of all kinds is much in evidence. In

Testing screens placed near a battery of vibrating screens

the aggregate plants are located simple testing laboratories for making quick screen analyses on the spot. The incoming material is screened as well as the various sizes of gravel and sand that are produced.

At a large West Coast plant a battery of vibrating screens has been in

use over three years and the screens are standing up under the 1000 tons per hour output. To test screening efficiencies, the Bureau of Reclamation has available a bank of screens ranging from ¼ in. upwards and most any size of opening conceivable. These screens are about 30 in. long and 16 in. wide. They were made on the spot and with 4-in. wooden sides.

A wooden hopper, shown in the illustration, has a set of rollers mounted at the top and over the hopper. These are home-made rollers from 2-in. pipe. The engineer making a test on the screening efficiency can take a 50-lb. (or larger) sample and with a few short steps get the sample to this small screening device as the hopper rests in front of one of the batteries of vibrating screens. Scales are also handily available for determining relative weights.

In operation, several of the screens can be "nested," paced on top of the rollers and in a few minutes the test can be completed without having to carry samples considerable distances to a laboratory—and then bring the rock back again.

Waste Sand Remover

FOR THE FRIANT DAM, sand and gravel was processed in a plant of generous proportions; 1000 tons per hour. The pit had more sand than the operation could use so the excess, after the removal of about $20,000 (per month) of virgin gold, was sluiced to waste. The plant has completed its job as far as the dam is concerned, but it may supply some gravel and sand later for the canals that originate at the dam.

The area for sand disposal was too flat for the material to be sluiced away so a tractor and bulldozer finished the job. The tractor worked in water which could cause considerable wear to the pins and bushings on the pads but the operation was considered economically sound.

Tractor and bulldozer used to remove excess wet sand

Truck mixer which can be raised from chassis by hoist to increase discharge height

Welding Tank Assembly

THE PRACTICE of having acetylene generators at some centrally located spot in the plant is more or less common. At a large West Coast plant an oxy-acetylene generating apparatus is used with the gas piped to convenient places throughout the plant.

Oxygen tanks connected to one gauge and piped like acetylene to point of need

The same idea can be applied to oxygen. At this same plant six cylinders of oxygen are all connected to one gauge and regulator and the gas is piped in a manner similar to the acetylene.

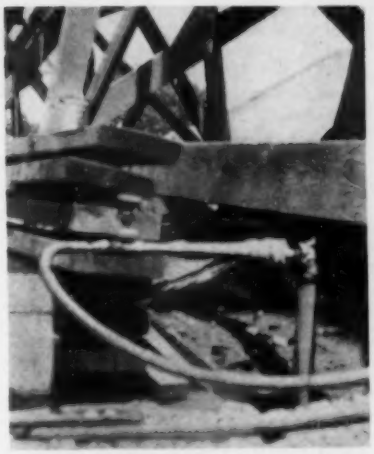
High Discharge Truck Mixers

C. W. BLAKESLEE AND SONS, INC., New Haven, Conn., has a special hoisting mechanism on some of its truck mixers. By means of it, the mixer can be raised to have a discharge height up to 7 ft., which is an advantage in pouring certain jobs that require height.

Hose Reducer for Pipe

OPERATORS of plants in the rock products industries have no doubt searched high and low for a simple pipe reducer. Reducers are inexpensive items but the "pigeon hole" for them is usually empty.

If this ever happens to any reader of ROCK PRODUCTS he may find a hoze nozzle as one operator did, and with the aid of a few odds and ends of pipe fittings make a very satisfactory reducer as shown in the illustration.



Pipe reducer made with the aid of a hose nozzle

Circular Cutting Tool for Ring-Connector Jobs

CIRCO TOOL CO., Milwaukee, Wis., has brought out the cutting tool, shown in the illustration, to speed up ring-connector wood construction

Speed up ring-connector wood construction with circular cutting tool

jobs. This type of construction has been used extensively during the past two years for industrial buildings, aircraft hangers, barracks, and other war jobs to cut down on the use of steel.

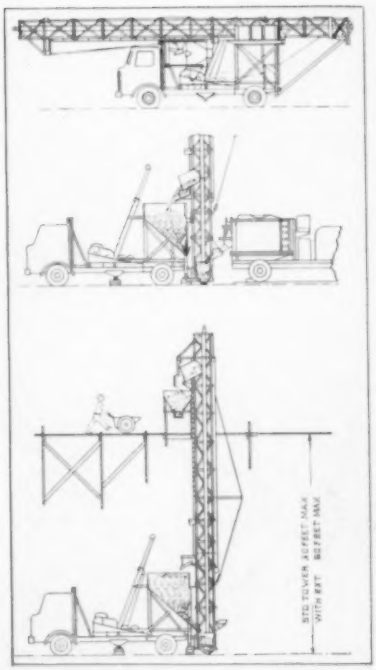
The tool illustrated is for cutting the circular grooves for the rings or bearing plates. In preparing the timber for ring-connector joints, circular grooves are cut concentric with the bolt holes in the rabbetted overlapping ends of the timbers to be joined. The depth of the circular grooves is about half the width of the rings. Before the joint is assembled, the rings are inserted in the grooves on one of the joining timbers. Then, as the timbers are drawn together by tightening the through-bolts, the protruding rings in one face enter the grooves in the other face. The larger bearing area of the rings utilizes a much greater percentage of the bearing strength of the wood than when bolts alone are used.

Much hand labor is eliminated by the use of the circular groove cutter which is powered by a portable electric drill. The split rings, of pressed steel, range from 2½ to 6 in. in diameter. The cutter is made with either two or four renewable blades for split rings from 2½ to 6 in. in diameter. Although the cutter in the illustration is driven by a portable electric drill, a drill press or hand-operated brace and bit may be used. A different type cutting head, with inside blades, is furnished to countersink bearing plates of the same diameter as the connector rings.

Hopper Tower

CHAIN BELT CO., Milwaukee, Wis., has developed what has been called the Rex Moto-Hopper Tower to meet the demand of the ready mixed concrete operator and contractor for a means of placing concrete on small isolated jobs where quick erection and mobility is essential.

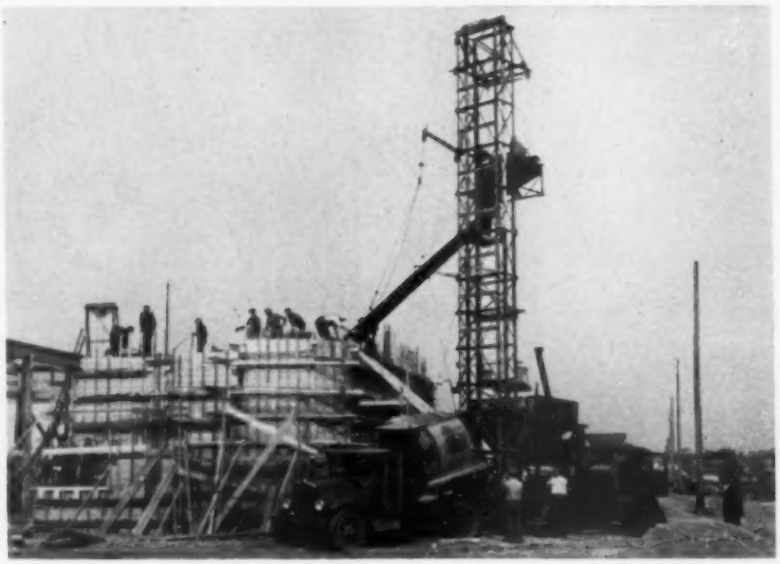
The entire tower and its operating devices are mounted on skids, ready to be set on a motor truck, trailer or semi-trailer. As the hopper-tower is operated by its own power, a second-hand truck in fair condition may be used to move the unit to the job. The structural steel tower is 45 ft. high but additional sections can be added if necessary. During transportation from job to job, the tower



From top to bottom: Hopper-tower with the tower folded back over top of truck to permit handling through underpasses; mixer truck unloading concrete which is stored in the big lower bunker; concrete is taken from the lower bunker and is lifted with the bucket and dumped into the hopper which is located at the required level

is folded down onto the truck. On the sub-frame are mounted three hand operated screws with blocks so that the frame can be leveled and at the same time stabilized for tower erection.

In addition to the two-drum hoist, there is a power-driven two-drum winch for raising and lowering the



Placing concrete at high levels with the aid of specially designed portable tower

tower. An 8-cu. yd. storage bin is mounted on the skid frame between the tower and the hoisting unit. This bin is equipped with a gate to hold storage or to deliver concrete into the tower bucket. A 1¼-cu. yd. delivery hopper is mounted on the tower and is easily adjusted to any height within the range of the tower by means of a hand winch and holding bolts. It is equipped with gates for delivery either to a chute or buggy.

A two-drum hoist is mounted directly in back of the truck operator's cab. This hoist is equipped with clutches and brakes. One drum operates the tower bucket and the other drum operates an auxiliary hoist line for lifting reinforcing material for the job. The hoisting bucket, which has a ⅔-cu. yd. capacity and operates inside the tower frame, is equipped with an apron and folding gate for the delivery of concrete from mixer to the bucket. By means of switch, the bucket can be made to empty either into the storage hopper or into the delivery hopper.

This hopper-tower equipment provides a storage bin for concrete when concrete placing is slow. In this case, the truck mixer can be quickly unloaded by means of the bucket hoist into the storage bin and driven away for another load. When no truck mixers are available and forms are ready for concrete, it can be taken from the storage bin and elevated up the tower into the delivery hopper. In the event of long waits, the concrete in the storage bin may be kept from setting by recirculating it through the hoist back to the storage bin.

Silica Refractory Brick Tests

General Refractories Co., Philadelphia, Penn., recently completed some interesting tests of Yough silica brick at the Clay Center, Ohio, plant of Kelley Island Lime and Transport Co.

An engineering report containing a complete history of a test kiln at this plant revealed that arches built of this silica refractory brick were still in almost perfect shape after the test kiln was fired up and after the kiln had been in actual production for 32 months.

The kiln in question is quite typical of all the vertical shaft kilns in the "Woodville" district, and has a Dutch oven type of furnace. The four arches are 32 in. in length, comprising two courses of 7- x 16-in. arch brick. On the shaft side of the arch they turn in a second arch comprising 6- x 16-in. arch brick. In the original installation standard Yough 9-in. sizes were used to level up over the arches to a point 2 ft. above where a retaining arch was located. Since the balance of the burning zone usually lasted the life of at least two arches this section was laid with clay brick.

Above: Silica brick in arches, sidewalls and piers of vertical lime kiln before firing up. Below: Refractory brick in good condition after three years' service

The kiln was placed in service January 20, 1940, and operated continuously until December 10, 1940. At that time the battery of kilns was shut down for repairs to conveyors, elevators and other equipment. The battery again was lighted February 15, 1941 and the kiln was operated continuously until December 22, 1941. The battery was shut down December 7, 1943 due to a seasonal drop in business which was exaggerated at the time due to war-time restrictions.

The illustrations show that the arches were still in good shape 35 months after the battery first was fired up and after the kiln had been in actual production for 32 months. An examination at the time by those in charge of the plant revealed that the clay brick in the burning zone in the test kiln had "burned out" and would have required repairs at the time of the shutdown even if the entire battery had not been taken out of production.

Alloy Steel

The Eimco Corporation, Salt Lake City, Utah, has announced a new alloy steel having the trade name of Utaloy. This steel is a further development of experience gained in the manufacture of this company's molychrome steel. It is said to be particularly adapted to withstand abrasion and impact such as that imposed on ball mill liners, jaw crusher plates, elevator buckets, feeder plates, bin liners, etc.

Access Roads to Mica Mines

THE NEW HAMPSHIRE Highway Department recently called for bids for the construction of access roads to three mica mines, the first projects to be let by contract in more than a year.

The largest project involves the construction of 2.964 miles of gravel road from the Unity postoffice through that town and part of Claremont to the Sargent mine, at an estimated cost of $17,785.

A second access road, to Parlermo mine in Groton, will be 1.77 miles long, and is estimated to cost $11,591.

The third, to lead to the Lyman mine in Alstead, will be .824 mile in length and the estimated cost is $3,850.

Start Crushing Operations

THE CONCRETE MATERIALS CONSTRUCTION Co., Cedar Rapids, Iowa, has moved several portable crushing plants near the site of the Solvay Process Co., Moline, Kans., to prepare aggregates for a big air base runway. It is expected that approximately 200 tons an hour will be produced when the plant is under full capacity. About 40 men will be employed on 10-hour day and night shifts. The company owns 10 portable plants and one stationary plant. Justin Hayes will be the superintendent and W. E. Naughton will be office manager of the Moline, Kans., plant.

Pennsylvania Access Road

CONTRACT has been awarded by the Pennsylvania Highway Department for the construction of 4.77 miles of concrete highway pavement 22 ft. wide, including two reinforced concrete structures, concrete apron and reinforced concrete bridge on Route 18 in Mercer County. The award was made to Central Pennsylvania Quarry Stripping and Construction Co., Hazleton, Penn. This is a federal-aid access road job.

City Holds Lime Company to Contract

ADA LIME Co., Ada, Okla., sought to withdraw its bid of $9.74 per ton to furnish Oklahoma City water department with lime for the next fiscal year. The company, which has furnished lime to the city for the past 2½ years, offered its bid last June 5. Five days later the bid was accepted by the city. The company asked the city council to allow the company to withdraw the bid and recover the 10 percent deposit of $1460 which had been offered at the time the bid was placed. The council, backed by the city manager, refused to agree, despite the statement of the company representative, E. C. Dunaway, that his concern could sell lime at nearly $5 a ton more to other buyers.

Bituminous Mix Group Elects Officers

OFFICERS were elected recently for the newly formed Bituminous Concrete Producers Association which will maintain headquarters in Columbus, Ohio. The officers are: President, Emmett E. Knorr, Max J. Zeller, Inc., Columbus, Ohio; vice-president, Paul R. Anderson, Marble Cliff Quarries Co., Columbus, Ohio; secretary and treasurer, Harry H. Brandon, Clinton Construction Co., Wilmington, Dela.; and directors, Jesse E. Phelps, Ohio Engineering Co., Lorain, Ohio; Victor K. Gamble, Allied Corporation, Columbus, Ohio; and executive secretary, Guy F. Atkins.

Soil-Cement for Parking Lot

A. O. SMITH Co., Milwaukee, Wis., recently laid a soil-cement pavement for a parking lot covering several acres to serve its employes. This is said to be the first application of soil-cement for this purpose in the Milwaukee area. Robert L. Miller, field engineer of the Portland Cement Association recently took a group of public officials for an inspection trip over the project.

Install New Lime Kiln

WASHINGTON BRICK AND LIME Co., Seattle, Wash., is now installing a second 40-ft. kiln at the Williams, Ore., plant. The new kiln will have a capacity of 15 tons of lime per day, compared with 10 tons in the old kiln. Two kilns were purchased from the Washington-Idaho Lime Products Co., Orofino, Idaho. One has been delivered, and the other will be shipped and installed later, comprising the third lime kiln at the Williams plant. V. Z. McCrary, superintendent of the lime plant, said that the company has been swamped with orders for lime, and the new kilns will help materially to meet this demand. C. H. Link, engineer for the lime company at Seattle, is supervising the installation of the kilns. Trumix Concrete Co., Medford, Ore., had the contract for the excavation work, and also furnished the concrete for the kiln foundation.

Cut Sales Tax for Stone By Changing Price Set-up

THE CEDAR COUNTY Board of Supervisors, according to a Tipton, Iowa, news report, cancelled and revised a contract with B. L. Anderson, Cedar Rapids, Iowa, for crushing rock for road purposes to reduce the sales tax. A new contract has been drawn at the same prices but with a slightly different wording. The old contract called for a flat payment of $1.50 per cubic yard for the crushed stone, but the new contract shows five cents for the crushed stone and $1.45 for processing. Hereafter, the county will pay a sales tax on the five cents per cubic yard instead of the $1.50, resulting in a saving to the county of about $3000 per year.

To Crush Sea Shells

CONSTRUCTION and operation of a sea shell crushing plant for the production of agricultural liming material is provided for in an appropriation of $20,000 by the State of Louisiana. The plant will be built at Bayou Lacombe in St. Tammany parish. It also was announced by Governor Sam Jones that the United States Soil Conservation Service was making available approximately $23,000 in machinery to aid in this project. This plant, it is claimed, will supply crushed sea shell to farmers at a cost of about $3.80 per ton.

Cement Silo Contract

CANADA CEMENT Co., LTD., Montreal, Canada, has awarded a contract for the construction of a 50-ft. diameter silo at Exshaw, Alta, to Carter-Halls-Aldinger, Ltd., Winnipeg, Man. The silo will cost about $65,000.

Awarded Contract

L. C. FOUNTAIN & SONS have been awarded a contract by Asotin County, Washington, for crushed rock which will cost $5500. The rock will be stored in bins near Cloverland, Wash., to be used on roads in the district.

Fights Quarry Seizure

SPOKANE PORTLAND CEMENT CO., has entered into a legal battle to prevent seizure by the federal government of its dolomite quarry at Marble, Wash., under the war emergency act. R. W. Nuzum, counsel for the company, has stated that if necessary the case will be carried to the United States Supreme Court. The dolomite, essential for the production of magnesium, is now being quarried and shipped to the Electro Metallurgical Company's new plant. The government is seeking to acquire the property of the cement company by condemnation under the war emergency act, demanding a title to it all in fee simple, with the intention of turning it over to some other company of its own choosing for operation, according to statement of the company's counsel. In its petition to prevent government seizure, the Spokane Portland Cement Co. has submitted a counterplan in federal court by which it hopes to retain title to the property, while at the same time supplying the government with all the dolomite needed for the war effort. According to the company, there is far more dolomite in its property than the government will need for the duration. It offers to supply the government all the dolomite needed for the war at an offered price or one to be agreed upon, with the stipulation that the balance remain the property of the company. Attorney R. W. Nuzum said, "If the court rules the government is within its rights to demand a fee simple title for the property under the war emergency act, there is no business safe from permanent government seizure under guise of war emergency."

Buy Lime Plant

ONE OF THE PLANTS of the Virginia Lime Products Co., Eagle Rock, Va., has been purchased by Miss Helen McNamara. As soon as certain essential machinery is obtained, the plant will be placed in operation. Miss McNamara is one of the owners and operators of the Eagle Rock Lime Co. The Virginia Lime Products Co. went into receivership several years ago, and since then the plant has not been in operation.

Liquidating

DAIGLER SAND & GRAVEL CO., INC., Williamsville, N. Y., is in process of liquidation and the real estate is being sold due to conditions arising out of the war. Future operations as a sand and gravel plant are dependent upon what disposition the successor owners may wish to make of the property.

Gravel Bids

DOUGLAS COUNTY, Nebraska will pay from 68½c to $1.21 a ton for 30,000 tons of gravel delivered to roads on which it is to be used during the coming year, according to bids recently opened. Bids were received from the Douglas County Gravel Co., Acme Sand and Gravel Co., M. W. Watt, Lyman-Richey Sand and Gravel Co., and Schallberg Sand and Gravel Co. The county was divided into five districts for bidding purposes, and different bidders were low for respective districts. The low bid from the Schallberg company was for gravel delivered on the railroad siding to Bennington and Irvington. Representatives of the company stated they could not deliver to the roads because they did not have the truck equipment, but presented a low price with the suggestion that the county use its own trucking equipment. Heretofore the county paid a flat per-ton fee at the pit and ton-mile delivery charge. The past year it paid 50c a ton at the pit and 4c per ton-mile for delivery.

Sues for Overtime Wages

LOUISVILLE SAND AND GRAVEL CO., Louisville, Ky., was recently sued by Sam H. Underwood, an employe, for recovery of $1,741 for alleged overtime wages. The employe worked for the sand and gravel company from October, 1941, to May 30, 1943. He also is asking for liquidated damages in the same amount.

Sell Quarry

THE CRUSHED STONE QUARRY 2½ miles south of Lowden, Iowa, belonging to the August Malottki estate was sold recently to Ralph Pennigroth for $5080.

U. S. Gypsum Sues W. L. B.

SUIT has been filed in the federal courts at Washington, D. C., by the United States Gypsum Co., to restrain the War Labor Board and Economic Stabilization Director Fred M. Vinson from using sanctions to force company compliance with a W.L.B. order to include union maintenance and checkoff provisions in a collective bargaining agreement covering the gypsum company's Warren, Ohio plant. In the suit, the company contends that it is not a function of the President to compel employers to require their employes to remain members of a union. All members of the W.L.B. are named individually in the suit as defendants.

JOHN MCLEISH, counsel for the company, said the suit challenged the imposition of sanctions under President Roosevelt's executive order of August 16, directing withdrawal of contracts and priorities from employers not complying with W.L.B. orders. All questions were settled in negotiations with the employe representatives except union demands for maintenance of membership and check-off. Mediation officers who heard the case, states the suit, made it clear in advance that these demands would be granted "in accordance with W.L.B. standards." William L. Keady, president of the company, expressed the view that if the President could compel employers to require their employes to remain members of a union, then another President could compel employes to remain out of the unions altogether. It is charged by the company that the imposition of sanctions under the executive order of August 16, 1943, would invade the authority of the legislative branch of the government.

PRESIDENT KEADY of United States Gypsum Co., in commenting on the case, said, "The company asks that the court declare that neither the President or as commander-in-chief of the Army and Navy, nor the War Labor Board has any power to impose compulsory arbitration upon the company or to impose any penalty or other sanction for non-compliance with the decision or order of the board."

Those named in the suit, in addition to W.L.B. members, include Fred M. Vinson, Henry Morgenthau, Claude R. Wickard, Jesse H. Jones, and Frances Perkins, who are members of the Economic Stabilization Board; Marriner S. Eccles, Federal Reserve Chairman; Hardy D. Smith, budget director; Prentiss M. Brown, price administrator; William Green, A.F.L. president; Philip Murray, C.I.O. president; Edward A. O'Neal and James G. Patton, farm leaders, and Eric A. Johnston, and Ralph E. Flanders, industrial leaders, also members of the Economic Stabilization Board.

PRIZE OFFER FOR Maintenance HINTS and HELPS For Publication in ROCK PRODUCTS

WAR

Requires **INGENUITY**

Requires **RESOURCEFULNESS**

Requires **CONSERVATION**

In the Use of Men Material and Equipment

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Space rates with a minimum of $5 each will be paid for all other Usable Hints and Helps accepted by the Editors.

RULES

1. Any reader of ROCK PRODUCTS actually engaged in a rock products operation may offer a contribution.
2. The manuscript may be typewritten or written long-hand, pencil or ink; spelling or grammar makes no difference—it is the usefulness or applicability of the idea or device as described that counts.
3. The manuscript should be accompanied by an illustration if possible. This may be a snapshot photo, pencil sketch, blueprint, etc.
4. The subject selected to be described may be any part of the operation—any phase of the production process. It may be on maintenance or repair of a piece of equipment or machinery; it may be a money-saving or maintenance idea on lubrication; an accident-prevention idea; a cost-keeping idea; a way of meeting labor or public relations problems—any subject made live by war conditions, or brought about largely by Ingenuity, Resourcefulness and Conservation as a result of war necessities.
5. In case of a tie for any of the prizes, duplicate prizes will be awarded to the persons tying.

JUDGES

The judges will be two prominent producers and the Editor-in-Chief of ROCK PRODUCTS.

Address all contributions and communications to

War Ingenuity Contest
ROCK PRODUCTS
309 West Jackson Blvd.
Chicago, Ill.

The contest is now open and closes on December 15, 1943. Prize winning HINTS and HELPS will be published in the January, 1944, issue and following issues.

Act Now!

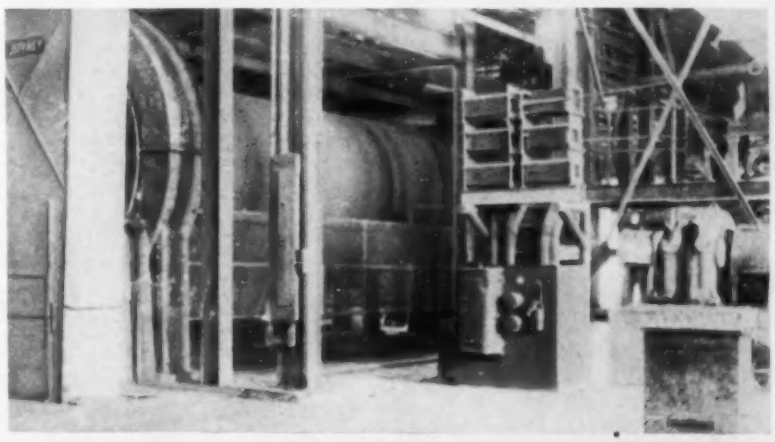
Nearly Triple Capacity Gulf Cement

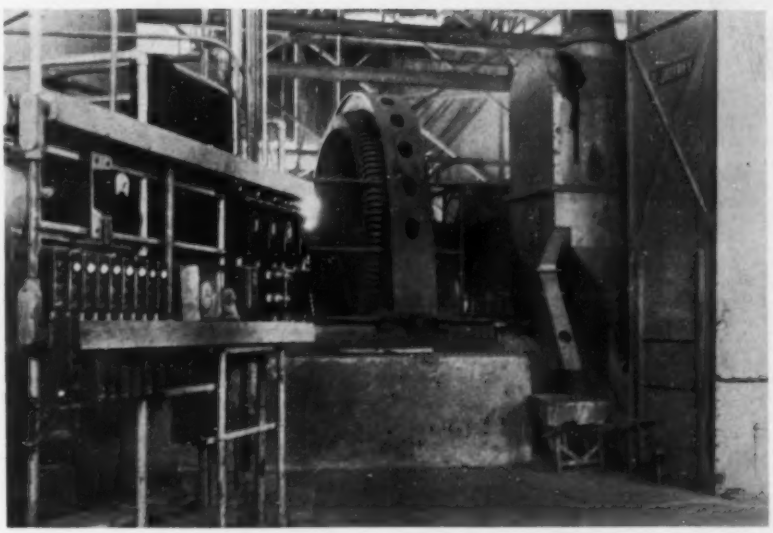
Add new raw grinding and clinker mills and install another kiln to step up cement production from 800 to 2000 bbl. per day

By WALTER B. LENHART

BUILT in 1938, the Gulf Portland Cement Co. plant at Houston, Texas, and the Permanente Cement Co. plant in California, is one of the newest portland cement mills constructed in the United States. The Gulf Portland Cement Co. is now a wholly-owned subsidiary of the Ideal Cement Co., Denver, Colo.

The Houston plant started out with the idea of having a small capacity unit which could be kept running at 100 percent capacity, thereby insuring a small but efficient and closely knit organization, as well as to keep the capital investment well below that of most cement plants. The original idea was sound for the plant has been operating 24 hours per day at full capacity ever since, but it soon became apparent that additional equipment would have to be added to increase production, so last year the capacity was increased from 800 bbl. per day to 2000 bbl.





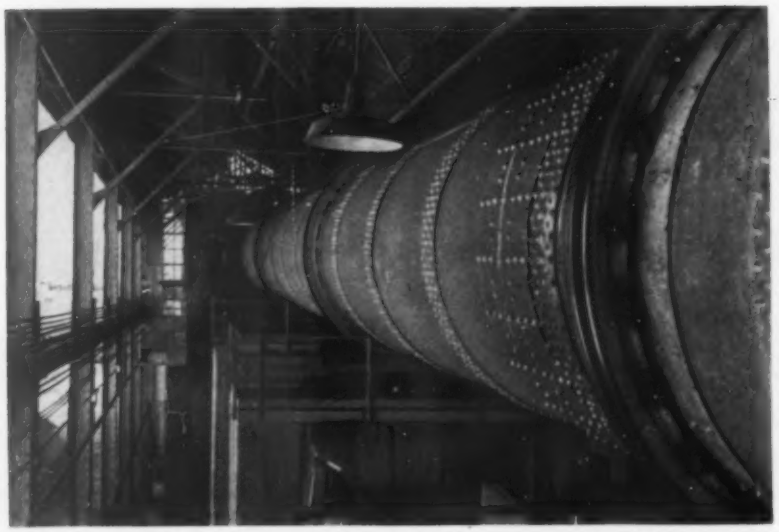
Add 7- x 26-ft. two-compartment mill in the raw grinding department, and a 7- x 30-ft. three-compartment mill for grinding clinker

This plant, like all the other cement plants in Houston (the others are Lone Star Cement Corp. and Trinity Portland Cement Co.), uses oyster shells pumped from local bays. These are delivered to the plants on barges. Usually this is done on a contract basis, letting the contractor worry about dredges, towing and the minor troubles of running a boarding house on the dredges with its rationing card complications.

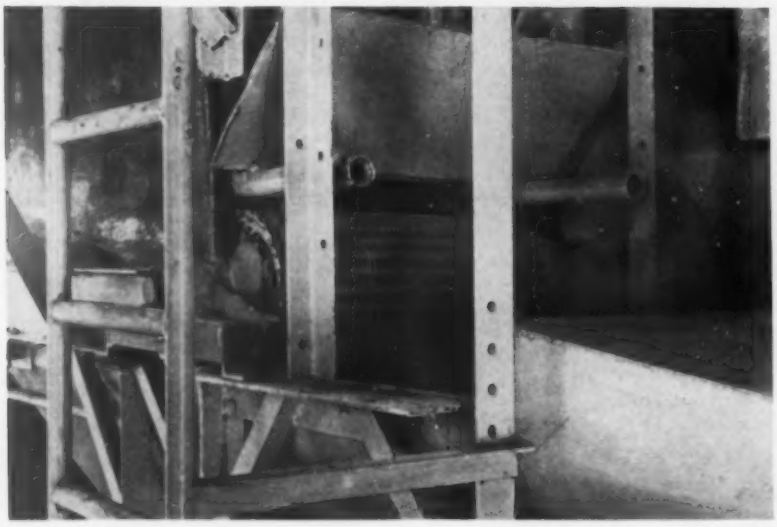
At the Gulf Portland Cement Co. plant, a new type No. 362 Marion clamshell crane was purchased to handle the required additional tonnage of shell and clay. The crane has a 2-cu. yd. Kiesler bucket.

Add to Raw and Finish Grinding Capacity

In the raw grinding department, one 7- x 26-ft. Traylor two-compartment tube mill was added. This mill is driven by a 500-hp. Electric Machinery Manufacturing Co. synchronous motor. To take care of the added raw grind output 2600 bbl. of additional slurry storage was provided. The slurry basins have Manitowoc Engineering Co. agitators. Additional air for these agitators is provided by a new Chicago Pneumatic, Type "Y" 7 x 13 Y-DE compressor driven by a 150-hp. Allis-Chalmers syn-



One of the two kilns which now produce 2000 bbls. of cement daily. Kiln hoods are provided with shields to prevent glare during black-outs



Above: Two bag cleaners which draw off dust to dust collector. Below: Woven wire cement sack conveyor helps make the packing room cleaner

chronous motor. The compressor is housed in the electrical control room that serves the entire plant.

A 9- x 220-ft. kiln was assembled from kiln parts that the company had on hand at its other plants. This and the 7- x 120-ft. cooler are about the only previously used equipment that went into the enlarged plant.

An American Blower Co. induced draft fan was installed for this kiln. Operating at 585 r.p.m., this fan has a capacity of 75,000 c.f.m. and is driven by a 100-hp. G.E. motor.

Natural gas is used for fuel. An electric control panel is mounted at the kilns and on it are mounted two Leeds & Northrup temperature recorders; one uses an I. C. couple and the second a "Rayotube." A Hays CO_2 meter and draft gauges are also located here.

As Houston is in a military zone where blackout regulations are watched closely, the hot end of the kiln is provided with plywood emergency screens to prevent any glare showing to possible hostile planes.

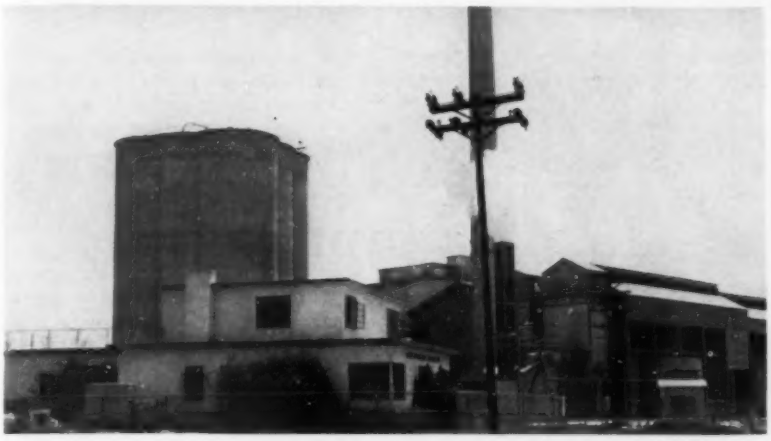
For additional clinker grinding a 7- x 30-ft. Traylor three-compartment mill was added. This mill is fed by a Jeffrey-Traylor Waytrol. The gypsum is also fed to this mill on a second and smaller Waytrol. The clinker and gypsum Waytrols employ pan conveyors and rubber belts. They are giving excellent service.

The clinker mill operates in closed-circuit with a 14-ft. Sturtevant air separator. There are now two air separators, the older one being a 14-ft. Raymond "Whizzer." Both are giving equal satisfaction. A Norblo bag-type dust collecting system has also been installed in connection with the clinker grinding mill.

More Storage and Packing Facilities

More cement storage was provided by additional silos having a capacity of 60,000 bbl. These silos, which give a total storage capacity of 95,000 bbl., are tied into the older storage silos using Fuller-Kinyon equipment. The original plant was fully described in the October, 1938, issue of ROCK PRODUCTS.

The original plant had a 3-tube Bates packer but the packing room has been augmented by the addition of a 4-tube Bates unit. The two machines are placed in line and packed bags fall to a woven wire loading belt that delivers to cars. All shipments are made by rail. The wire loading belt, supplied by Wickwire-



Exterior view of modern cement plant of Gulf Portland Cement Co. Attractive office building in the foreground

Spencer Steel Co., makes a cleaner operation as it allows any loose cement to fall through the meshes. In the packing room a second Norblo dust collecting system has been installed which picks up the cement that falls through the wire-mesh belt. This unit also serves two bag cleaners manufactured by the same company.

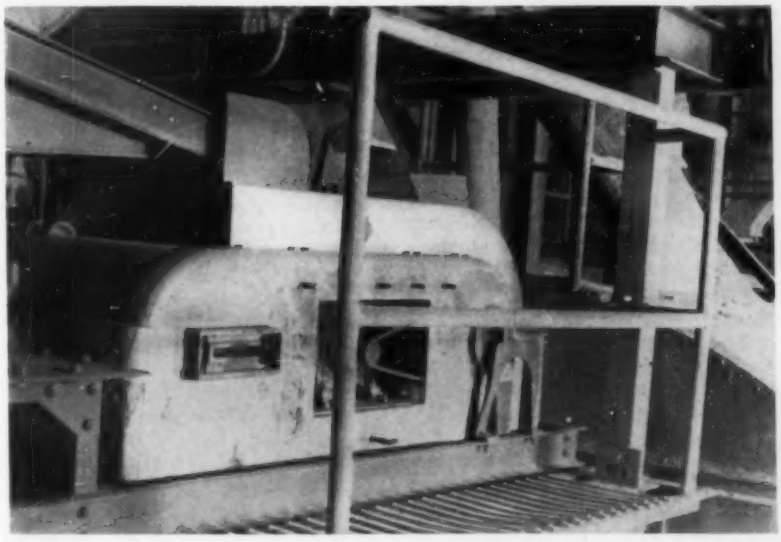
Water supply for the entire plant has been augmented by the installation of a Layne turbine pump. It is mounted over a 680-ft. well and uses a 125-ft. column. The pump is driven by a 20-hp. U. S. electric motor.

Adjoining the compressor room three Kuhlman transformers have been installed. These are rated at 500 k.v.a. and drop the voltage from 13,000 to 2300. Electric power is purchased locally.

For electrical control of the new equipment additional switchboard capacity was provided. The older equipment uses Westinghouse controls for the most part. The 500-hp. synchronous motors in the raw and finish mill use controls supplied by Electric Machinery Manufacturing Co. The balance of the new equipment has General Electric Co. controls.

The addition of the new equipment has been made in a very skillful manner without disarranging the orderliness of the older installation and withal is a plant that any company can be proud of.

The officers of the Gulf Portland Cement Co. are C. Boettcher, president, Denver, Colo.; C. K. Boettcher, vice-president and treasurer, Denver, Colo.; M. O. Matthews, vice-president, Ada, Okla.; Cris Dobbins, assistant to the president and assistant general manager, Denver, Colo.; Thos. B. Douglas, general superintendent, Denver, Colo.; F. A. Lee, chief chemist, Houston, Texas; H. B. Bolton, sales manager, Houston, Texas, and H. Lamont, superintendent, Houston, Texas.



Close control is kept on the feed to the clinker mills by means of a vibrating type weighing feeder

Final Figures on Portland Cement

BUREAU OF MINES recently released the final figures on portland cement production and shipments. Production in 1942 totaled 182,781,184 bbl., and shipments amounted to 185,300,884 bbl., increases of 11.4 and 10.7 percent, respectively, compared with 1941. Average factory price per barrel in bulk was $1.53 in 1942, an increase of 6c a bbl., from the average in 1941, and the highest average recorded since 1934, $1.54 per bbl. Producers stocks of portland cement at mills on December 31, 1942, were 17,445,220 bbl., 12.6 percent lower than those at the end of 1941.

In 1942 portland cement was manufactured at 154 plants and shipments were made from 155 plants compared with 155 producing and shipping in 1941. One new plant in Puerto Rico was put into operation in 1942 and the two plants in the State of New Jersey were abandoned. Capacity for production of finished portland cement of the 155 shipping plants and one inactive plant was 248,850,948 bbl. in 1942. Total production for 1942 was 73.5 percent of the indicated capacity at the close of the year; the corresponding figure for 1941 was 66.3 percent.

All of the producing states showed substantial increases in production with the exception of New York, which showed a decrease of three percent. Kansas increased 55 percent, Puerto Rico 44 percent, Texas 25 percent, Illinois 20 percent, California 17 percent, Tennessee 15 percent, Michigan 12 percent, Missouri 10 percent, Alabama 15 percent, Pennsylvania 6 percent, Ohio and Iowa, less than one percent.

Making Special Cement

UNIVERSAL ATLAS CEMENT COMPANY'S plant at Independence, Kans., has been operating at peak capacity producing a special type of cement for a large flood control and power dam in Arkansas, according to C. M. Carman, manager of the plant. Mr. Carman recently spoke before the Local Kiwanis Club about the cement industry's part in the war effort.

Preventing Failures of Equipment

A Fifty-Year Record at the Dresser Sand Co.'s Missouri River Plant

By EDMOND DRESSER

Edmond C. Dresser

FIFTY YEARS AGO I went to work for my father at the Dresser Sand Co., Leavenworth, Kan., on the Missouri river. He organized that company. I was eighteen. One of my first jobs was to go up the river with the barge, locate the sand, load on a hundred tons or so, and bring the barge back to our dock and help unload her.

For ten years I did this—in fact about every sort of job there was to do around a river sand outfit. I think I know the business from the bottom of the river—up.

In 1903 I took over as hoist operator, unloading the barges of sand and then loading the sand into railroad cars and wagons. We had an American steam hoist for unloading and a gas crawler crane for filling the cars and wagons.

I've been on that same job now for forty years. What's more, I am today using the two machines I started with. There have been replacements—sure—three new boilers for the steam hoist, an adjustment in the boom, and other replacements. But the machines are the ones I started with.

And today they are both working overtime in our effort to deliver on time our part in filling war contracts and furnish all the material needed.

Since I started as operator in 1903, I have done all the repair, maintenance, and rebuilding on my machines and will continue to do so as long as I operate the equipment.

There are a good many helpful articles today in the trade magazines for our field about preventative maintenance, making existing equipment last for the duration, shop rebuilding, welding, and so on. I know machine operators who are doing their own repair and rebuilding jobs for the first time in their lives. This is certainly one good thing which has come from the war.

Making Repairs Makes a Good Operator

When a man handles all the repair work on his machine, it makes that man a better operator. He has more confidence in his equipment. He is more alert. He is a safer operator. He learns the hard way the biggest point of endorsement for a preventative maintenance program.

He learns that oil and grease are *cheap* (regardless of cost), and that repair work and rebuilding jobs are *expensive*.

When a machine operator learns that he begins to mark up records for longer life for equipment. This goes for all equipment.

Take wire rope for instance. Twenty years ago I found that I could double the life of my cables by simply taking better care of them—seeing that they had the proper dressing for our type of work, giving special attention during the breaking-in period, checking fittings, inspecting for showings of wear—treating the rope as it should be treated.

On the steam hoist we use a ⅝-in. and ¾-in. rope. On the crawler, ⅝-in. and ½-in. When we began buying only the type of ropes recommended by the manufacturer and using only recommended dressings, our ropes began lasting longer. It was as simple as that. We used the best type of ordinary cable, of a construction which was company recommended.

In 1934 or '35, a new type of cable was recommended to us. Preformed. We tried preformed ropes first on the hoist. The initial cost of the preformed rope was considerably higher than we had been experiencing for ordinary kind. We were in doubt as to whether the new rope was worth the difference in price. But we soon found that the preformed rope lasted longer and it gave a better account of itself over the small sheaves and drums. It took less breaking-in and when new fittings had to be made or a splice, there was considerably less loss of footage. Consequently we switched to all preformed and since we changed we have been averaging twelve months' service life for our cables as against a little over six months with the best type of ordinary rope.

Ropes on the hoist are under heavy strain. The sand bucket, empty, weighs 4800 lbs., and will average picking up 4 tons of sand from the barge at a bite. Then we use the big hoist for lifting boats from the river and other heavy work where a break might mean loss of life as well as loss of equipment. Since we started using preformed cable we have never had a rope break.

Good Maintenance—No Accidents

In the entire forty years I have had but one accident to a workman and that a finger injury. No accident to equipment which caused more than a temporary halt in operations. I have been told this is something of a record. I am sure that the lack of accidents is due to the same policy of operation and care of equipment which has resulted for much longer life for the machines.

It has been my observation that most accidents are the result of carelessness. I once had a machine operator tell me that 95 percent of all the accidents he had witnessed should and could have been avoided.

My father, who taught me machine operation, said that time spent in inspections and in making minor corrections and repairs, even if those repairs were not an immediate need, was the best time spent on the job. We kept a record once of the actual hours spent in servicing and inspecting the two machines. It didn't average over thirty minutes a day. A thorough inspection and full lubrication before starting up, now and then a minor repair or correction, and occasional check-ups when the machine was idle during the work day.

I have noticed that after a check-up, I always operate my machine to better advantage. This may not be a rule which applies to all operators—I do not know. But for me, there is a feeling of confidence in my equipment which shows in the job I am doing. A part of this confidence may come from years of doing the same thing day after day with the same machines but I believe the biggest factor is in knowing that your equipment is ready for the job.

In my years as crane and hoist operator I have trained many green hands. Some of these men now are "tops" in their profession. Two of them, today, are operating mammoth traveling cranes in ship yards on the west coast. In training a man to become a crane operator, of course the first thing to teach that man is his crane and how to use it. This he must know.

Frequent Inspections

The next point I try to bring home is the value of frequent inspections, lubrication, and the correction of minor adjustments.

When I am training a new man, every time the crane or hoist is idle, we check. This is what I would do anyway, and going through the regular inspections with me, gains for the new man the actual condition information which he can then associate with operations when the machine is going again.

I have found that this speeds up learning and at the same time impresses on the new man the need and value of frequent checks, lubrications, and corrections of minor errors.

Making major repairs is not a thing which I have found needs stressing. The operator, as soon as he learns enough to run his machine, knows that these must be made. It is the small adjustments which he could easily pass up until a later time when there is nothing to do, such as a delay because of weather, that need to be impressed on both new and seasoned machine operators. If attention is given here, nine out of ten major repair jobs will be eliminated.

When an operator learns this point, just as when a young man learns that saving money must begin with saving small sums, that operator has learned, I think, the biggest one thing in his trade. It leads to a record for safety, a record for longer life for his machines and equipment, and more work delivered in the required time.

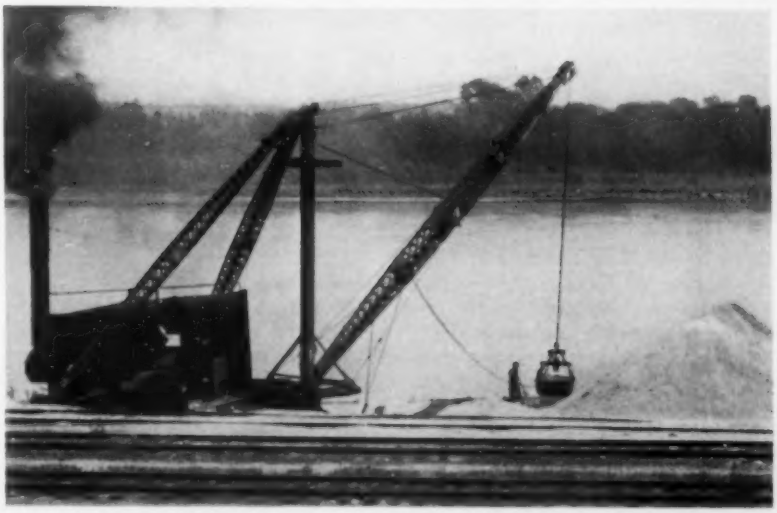
These are all points which are especially vital right now when the output of all industry is needed for winning the war. Suppose it takes twelve hours a month for extra machine servicing. Six hours of that time will fall during shut downs—or for our type of work it will. Every operator knows how far six hours will go towards the completion of a major repair or rebuilding job. Such layups take days rather than hours.

What's more, they cost money. I have known of few forced layups because of major repair needs which did not require the outlay of considerable money. And the cash cost of accidents is usually large where the accident includes an injury to workmen. Besides the cost, there is the suffering and the family inconvenience to be considered.

My understanding of "Preventative Maintenance" as practiced by the machine operator, is exactly this method of care and inspections and correcting small errors before they become big ones and cause serious trouble. I know from my own experience of forty years that this policy if followed by an operator will eliminate seventy-five percent of the layups for repairs and rebuilding jobs. It will eliminate ninety-five percent of the accidents.

There is only one policy that I know which is sure fire. Start with the best equipment you can buy which carries the factory recommendation for your type of work. Take the best care of that equipment that you can, and make inspections and minor adjustments and corrections whenever they are needed and look for them all the time.

That policy is the one I have followed since 1903 on the same two machines I started with. I know that it has saved thousands of dollars, avoided many accidents, and resulted in greatly increased production.



Dresser Sand Co. has kept its steam dredge equipment operating through a long period of years by careful overhauling during off-peak period, welding, and careful maintenance of wire rope

Move Quarry Machinery

E. E. TRENARY, Trenton, Mo., operator of a quarry near Kingston, Mo., has suspended operations for the present. Russell Swaithes, manager, advises that some of the crushing machinery, however, has been moved to Grundy county where a contract has been secured for producing agricultural limestone.

WELDING

Part the Welder Plays in Keeping Up Production in Sand and Gravel Plants

By HENRY BARRETT*

Henry Barrett, foreman welder, and his better half

THIS ARTICLE is based on my actual experience, sometimes doing the job myself, sometimes with my fellow welders, but always on the job day after day, year after year, welding in one of the largest sand and gravel plants.

I doubt if anything is more severe on machinery and equipment than sand and gravel. Our average tonnage screened and shipped in a 9-months' operating season has been about 1,000,000 tons. The remaining three months of the year are spent in overhauling and repairing.

We have a fleet of four tugboats. One is of steel construction with Diesel power, one is steam powered, the other two are gasoline-engine driven. The steam tug calls for repairs to boiler fire cracks, flues, rudder damage, hull damage, worn propeller shaft, etc. The wire-rope towing cables are neat, no loose ends tied with wire; we weld the cable ends. The two smaller tugs, gasoline-engine driven, owing to operation in shallow water, are occasionally troubled with cracked cylinder heads and cylinders. We weld them in our repair shop.

*Construction Aggregates Co., Ferrysburg, Mich. This is an abstract of one of the prize papers of the James F. Lincoln Arc Welding Foundation Contest.

Our fleet consists of eight scows, each holds a deck load of 800 tons. They are of steel and require constant repair and maintenance through the use of welding. Damage is caused by the bumping and abrasion of the unloading buckets. All repairs are easily made by electric welding.

The gravel pit is about 15 miles up the river from the plant. The scows are loaded with a 50-ton crane, having a 100-ft. boom and a 2-cu. yd. bucket. This crane operates 24 hours a day, six or seven days a week, averaging 33,600 tons a week. The maintenance of the crane and accessories is naturally very important and welding plays a large part in making repairs to spare shafts, pins, sheaves, hinge bushings, cutting edges of the bucket, etc.

The scows are unloaded at the plant by a similar crane. The gravel then goes to the screen house for washing and screening. Thirty-two screens are required. The screens are watched constantly and "Abrasoweld" is used exclusively on vital spots, saving an enormous amount of steel that would otherwise have to be replaced. The screen wires are maintained in this way. Bad spots are removed from the larger screen plates and new pieces welded in. Good workmanship is highly essential here because, if a plate broke adrift, great damage could be caused to the conveyor belts, etc.

Oversize gravel is crushed in jaw and roll crushers, and we have had excellent results in maintaining these with "Manganweld."

Chutes and hoppers are all steel; some 20 tons of steel go into this plant in the form of liners every year. Were it not for maintenance with arc welding that amount of new steel would be required every working month. The vital spots are saved by applying Abrasoweld weaved into a pattern of single beads so that the welder forms 1-in. squares. Liner plates formerly were bolted in the chutes. Abrasion wore off the bolts. Arc welding the plates in position simplified this operation, preventing leakages, which results in less cleaning of floors, and less deterioration of wood floors from water.

Hundreds of feet of water-supply pipes are used to reach screens and chutes—ranging in diameter from 1 to 30 in. Welding plays a great part in the installation of new lines. No

Airplane view of the Construction Aggregates Co. sand and gravel plant at Ferrysburg, Mich., one of the largest plants in the country

plumbers are needed. I myself design the patterns and welding does the rest. We have no leaky joints.

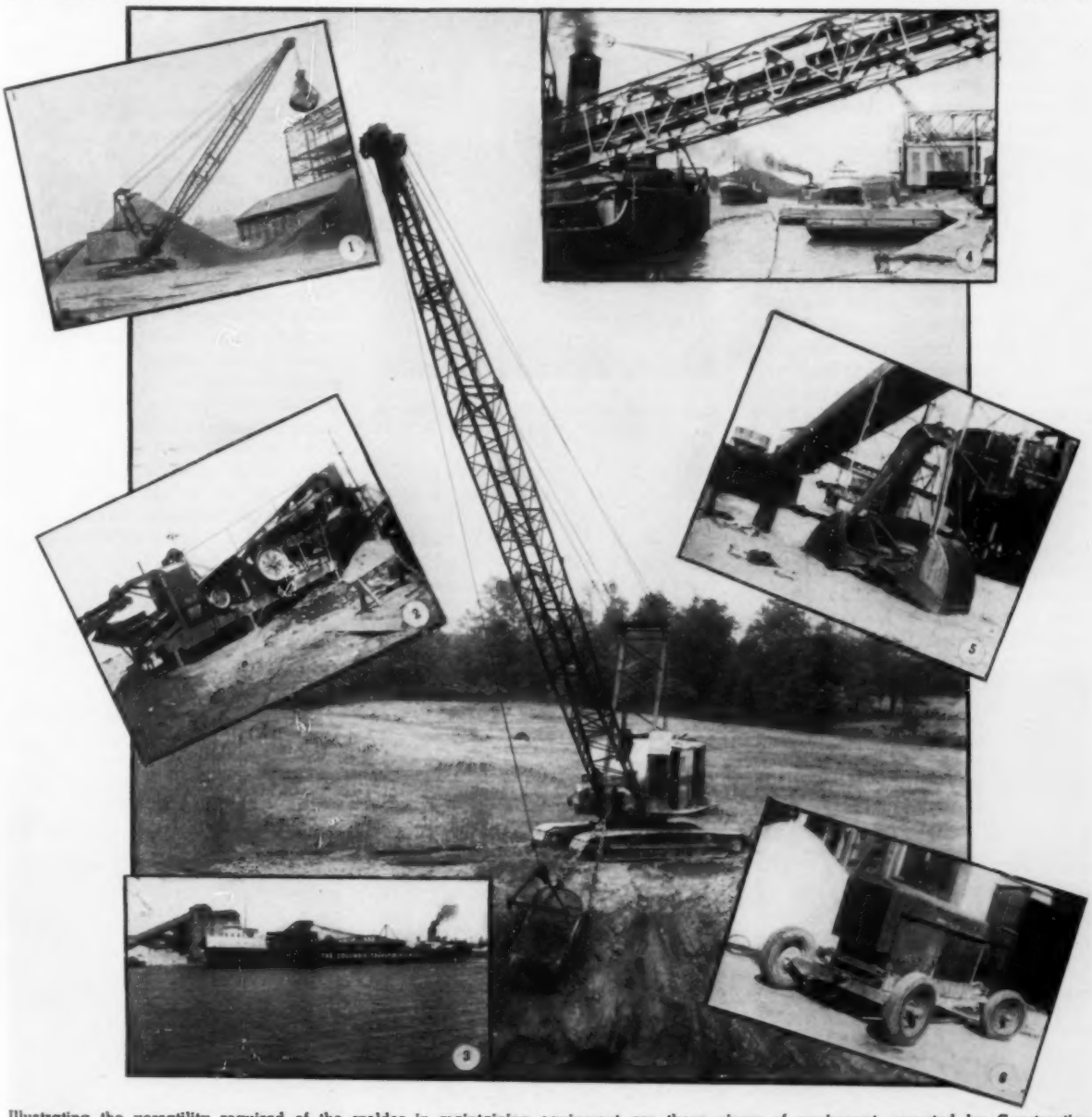
There are many advantages to be gained through an alert maintenance department. New machines and equipment can be installed, but these are not always efficient after they are put into service. Breakages occur, sometimes caused by weaknesses in design and construction, sometimes from vibration in the plant or other causes. It is generally the welding engineer or foreman who is called on. Then comes the question: "Can it be welded or reinforced by the application of welding?" Through years of experience, we welders study the particular break or weakness, and we come to know as soon as we look at it whether or not welding is the answer. Very often through the work of the welder comes a new and improved design.

Although we are a maintenance crew, the management works with us 100 percent. Every welder can express his views on any improvement. His plans are carefully studied and in nearly all cases he is given permission to go ahead with his ideas.

Our welding equipment consists of four electric outfits, from a 400-amp. portable to a 200-amp. stationary. The last we have had in continuous operation for 12 years; and it was second-hand when we started using it.

Fifteen years ago I entered the employment of this company as a ship fitter and welder. Welding was young in those days, but I did my best to push the cause ahead. Every place

(Continued on page 59)



Illustrating the versatility required of the welder in maintaining equipment are these views of equipment operated by Construction Aggregates Co., Ferrysburg, Mich. (1) Crane with long boom and clamshell. (2) Portable screening and crushing plant. (3) Steamships to handle aggregate. (4) Ship-to-plant conveyors. (5) Buckets receive a large amount of attention by the welder as they are subjected to severe service. (6) One of the electric welding units

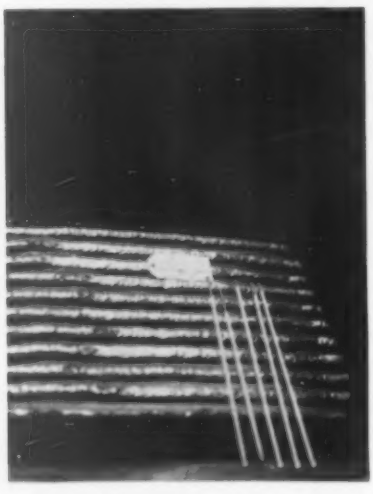
Hard Surfacing Prolongs Life

Equipment maintenance methods are frequently overlooked by busy producers

ONE WOULD GUESS from the amount of publicity given the subject, that all operators of rock products machinery were familiar with the life-saving attributes of welded-on hard surfacing alloys. However, a recent sampling of typical operations, particularly the small and intermediate size operations, shows that many owners of plants have not availed themselves of this process in maintaining and increasing the life of their machinery.

Probably this neglect is not due to lack of awareness of the developments in welding, but rather to the fact that relatively small operations do not have enough welding work to keep a man on the payroll for that purpose. If that is the case there are several ways around this difficulty: (1) have the foreman or superintendent learn how to use a welding torch; (2) make a retainer contract with a commercial welding firm to do your work when called upon; (3) form an association with your competitors, or producers in other industries, to employ a welder to serve the group, pro rata.

Welders are scarce now because there are so many opportunities for them in war industries. On the other hand there never were so many schools for teaching welding — and there are instruction books galore. Even women are becoming expert at it. Welding rods are still obtainable for the rock products industries, and a liberal use of them may be the only way some plants can get their machinery and equipment in condition to operate in 1944.



During welding, the hard-facing was staggered to avoid overheating and warping this crusher jaw

Dipper teeth, when hard-faced, last two or three times longer than before

It will not be attempted here to enumerate all the various hard-surfacing welding metals. Each has its special virtues, according to its manufacturer, and each manufacturer furnishes detailed instructions for its use. Nearly all these manufacturers have staffs of engineering experts who have had much experience in applying welds to every type of equipment used in the rock products field. These experts' suggestions and advice are readily available to the purchaser of alloy welding rods.

Some of the advantages claimed for hard surfacing machine parts, good at any time but particularly valuable in these times of W.P.B. priorities are:

(1) The parts last longer than the original cast iron or steel.

(2) Eliminates need for frequent repairs or replacements. This involves fewer shut downs, and therefore can mean savings way beyond the mere cost of repairs or replacements.

(3) Conservation of critical materials. The worn part may be built up of welded steel and merely surfaced with a wear and abrasion resisting hard-surfacing weld, or coating.

(4) During off seasons or when the welder has nothing else to do, he can make inventory spare parts out of worn and discarded parts.

(5) Keep up production by providing cutting or crushing surfaces or edges—that is, keep machinery up to par.

For example, the parts most commonly hard-faced on rock products equipment are shovel and dragline dipper teeth, bucket lips, grader blades, scarifier teeth, sheaves, crusher jaws, crusher rolls, gyratory crusher mantles, hammer-mill hammers and rings, spiders and concaves, dredge cutter blades, dredge pump parts, and valves. As can be seen, this list includes equipment subjected to abrasion together with widely varying degrees of shock and impact. For instance, sheaves suffer little from shock, while gyratory crusher parts must withstand very severe shock. The manufacturers of hard surfacing alloys have welding rods especially adapted to each use.

Examples of repairs by hard-surfacing are as follows: A major repair which saved a contractor nearly $200 was the building up of the badly worn lower edge of a bucket faceplate. The faceplate was originally 1¼ in. thick.

Spider for a gyratory crusher showing a pad of hard-facing material

Props are used to separate the lips of this clamshell bucket during hard-facing

but approximately ⅞ in. of the surface had worn down, leaving only ⅜ in. of material. Due to the wear, the bucket had become weakened and had begun to crack. Starting from the center of the plate, approximately 1¼ in. of hard-facing material was applied by the electric arc, both to stiffen the casting and to add additional life to the bucket. The required 50 lb. of hard-facing rod was applied in 11 hr. The estimated cost of repair of the bucket face was $90, whereas replacement of the part would have cost $285.

The lips of a clamshell bucket used in a quarry were hard-faced to a depth of 5/16 in., and in 15 months had worn only 1/16 in., indicating many more months of service before refacing the lip would become necessary. Prior to the application of hard-facing materials, the lips wore at the rate of ¾ in. for the same period of time.

This hard-faced crusher mantle crushed approximately twice the tonnage handled by a new steel mantle

One of the largest hard-facing jobs ever undertaken was rebuilding a 34-ton gyratory crusher mantle. The shell of the 12-ft. diameter mantle was 5 in. thick. It had worn down approximately 1 in. at the deepest point, the wear tapering to zero about 14 in. from the bottom of the mantle. It was estimated that slightly more than 1,400 cu. in. of metal had worn away, and the operators of the plant decided to rebuild first with manganese steel followed by a final layer of hard-facing alloy.

The mantle was lowered from the crusher housing so that the metal could be deposited in as flat a position as possible. A heavy steel cable was then wrapped around the shaft

Crusher bowl for gyratory crusher showing the hard-faced concaves

so that the 34-ton casting could be turned as the welding progressed. The cable was operated by means of a chain block, and the timbers on which the shaft of the mantle rested were notched and greased to facilitate the turning.

Three beads of manganese steel were first deposited and the welds were staggered to eliminate heat effects and the possibility of melting the zinc liner. Approximately 9/16 in. was thus built up and then completely covered with 7/16 in. of hard-facing alloy. This job required 450 lb. of welding rods. The total welding time, including time for turning the casting, was 104 hr.

One might go on indefinitely with examples of the economy of hard surfacing for repairs and maintenance; and the foregoing is something that nearly all large operators have learned and used to good advantage.

Either the oxy-acetylene or the electric arc process can be used for depositing hard-facing materials, the former being recommended when it is desired to obtain a smooth and well-shaped deposit free from cracks. However, on most types of hard-surfacing jobs in the rock products industry this feature is unimportant, and the metallic arc process is generally used. The metallic arc is always recommended for depositing the hard alloys on manganese steel, and generally for hard-facing large surfaces and parts which would be subject to warpage in preheating.

Welding

(Continued from page 57)

welding could be applied, I applied it. The management began to see its many advantages and gave me coöperation in every way. I enjoyed the many trips I made to the office with different ideas and the willingness of the management to go ahead and try them out. Today I am foreman welder and steel mechanic. I have learned a great deal from discussing our problems with the representative of the welding equipment manufacturer. In this way we are able to apply any new product or application that will enable us to keep maintenance costs at a minimum and production at a maximum.

Size Mica Electrostatically

A NEW METHOD of thickness-sizing mica flakes is described in a Bureau of Mines Report of Investigations, No. 3662, by Oliver C. Ralston, principal chemical engineer, and Foster Fraas, assistant chemist. The mica is ground to a powder, is sized by screening, and each size fraction is then passed separately over a shaking table which is subjected to electrostatic charges from a grid electrode suspended above and parallel to the table. The sizing effect is brought about by the fact that the thinnest mica flakes are supported most strongly by the electrostatic charge, and are therefore least affected by the movement of the table. The "tailing" of the table thus contains the thinnest particles, and the "concentrate," the thickest. This closely sized mica product has been found superior to the ordinary screen-sized mica powder.

Article I of Series

Importance of Maintenance, Inspection and Lubrication

WHEN THE WAR is over, purchasers and owners of all kinds of machinery and equipment in these industries will have the finest kind of operating manuals. To a considerable extent these are a war product. Manufacturers of all kinds of auxiliary machinery and equipment, used in army and navy construction, have prepared for use of the armed services very complete operating and maintenance manuals, in many instances listing and illustrating every single part used in the building of the machine.

Some of these are not yet available to the general user, but eventually they will probably serve as the basis of similar manuals for all users. Many manufacturers admit that instruction books or directions previously furnished with their machines were rather sketchy. When the army and navy purchased these machines to be operated by men more or less unfamiliar with them they wanted detailed instructions. The result is that some highly instructive manuals have been produced, covering every phase of the protection, maintenance and lubrication of various machines.

There is too much of this material to be reviewed in a single issue of ROCK PRODUCTS, but with the winter season coming on, we are starting in this issue to give some of the salient facts in regard to the care and maintenance of equipment, which may not be familiar to some of the newer personnel of the industry.

Blast-Hole Drills

J. VALE DOWNIE, Keystone Driller Co., supplies the following:

The care and maintenance of blast-hole drills are not of themselves complicated problems. Our company issues a lubrication chart and a set of instructions for the care of operating well drills. These instructions could be covered in a few brief sentences:

(1) Lubricate all anti-friction bearings at least once a week.

(2) All other bearings should get grease or oil daily.

(3) Check crown sheave bearings each time the derrick is lowered.

(4) Check crawler bearings on Model 51 before each move.

(5) Drilling tool joints should be kept absolutely clean and free from grease or grit when in use. When placed in storage joints should be greased to prevent rust.

(6) On belt driven machines the belt should be kept clean and free from oil and grease. The only dressing recommended is an occasional application of a few drops of castor oil.

(7) Keep all joints tight.

(8) Keep machine clean and painted.

Well drilling machinery which is constantly moving over rough terrain is subject to constant strains and stresses and a good deal of abuse. In operation it must endure a perpetual succession of shocks as the tools are raised and lowered in the well, for a blast hole drill is essentially a portable power hammer.

Item No. 7 above is probably the most important suggestion offered and the hardest to put into effect. Some drill operators seem to have an unconquerable aversion to using a hand wrench. They may notice that a nut is loose when it falls to the ground, but not before.

It is very good practice to go over the machine with a wrench every week, or oftener, to make certain that all joints are secure.

There has never been a time in the history of the quarry industry when care and lubrication would pay such dividends as now.

Certainly the present is no time to burn out a bearing.

Cableway Excavators

LOUIS MCLOUTH, Sauerman Bros., Inc., gives us the following notes on "War Time Care of Equipment," referring specifically to power drag scrapers and slackline cableways:

The projection of the useful life of your existing machinery through the emergency period of the war is a patriotic and practical necessity.

LUBRICATION — The greatest single factor in the maintenance of these—and most—types of machinery is *continuous* lubrication of *all* bearing surfaces. Emphasis is properly placed upon continuous lubrication instead of upon high grade or properly selected lubricants. Surfaces which are continuously lubricated are nearly certain to have a long and trouble-free life.

The use of high grade and properly selected lubricants is the most direct and certain means to continuous lubrication. There is, however, a direct relationship between the frequency of application, the amount of attendance, and the quality and suitability of the lubricant necessary to insure continuous lubrication. If and when sub-standard lubricants are used in war time, their deficiencies must be made up for in added attendance and greater frequency of application.

Maintain continuity of lubrication of all bearing surfaces.

LUBRICANTS—New machines are furnished with an initial supply of properly selected lubricants for the particular machine. Do not divert these to other uses. Replenish the supply with the same, or equivalent, grades.

In general, all high pressure gun-lubricated bearings require high grade No. 1 grease for normal temperatures. (Sauerman No. 1 Grease.)

For silent chain drives, splash lubricated, a light bodied, highly refined machine oil is recommended, and Sauerman No. 11 Oil is the general choice for this duty.

For open gearings use a viscous gear compound, which will not squeeze out, but which has high lubricating qualities. Sauerman No. 6 compound meets these requirements perfectly. It is applied with a brush but must be heated first, as unlike some gear lubricants it does not contain a thinning ingredient.

For enclosed gearing follow manufacturers' recommendations accompanying gear reducers, gearmotors, etc. A light gear lubricant, such as Sauerman No. 7 compound, is usually recommended.

For "Hydraulic Operators" or other hydraulic systems use a highly refined Medium Hydraulic Oil—and be sure to keep it clean throughout its life.

For wire rope, except operating cables in contact with abrasive materials, use a compound similar to

(Continued on page 90)

Browntown Silica Meets Growing War Demands

Pump all silica raw material after preliminary crushing in quarry. Four mills grind large variety of sizes. Two Diesels supply power for all operations

By RALPH S. TORGERSON

P. W. Palmer, president, to the left, and J. E. Palmer, vice-president, to the right, standing in between two of the new silica grinding mills at the time of installation

LOCATED about a mile west of Browntown, Wis., is the modern plant of the Browntown Silica Co., producers of finely ground silica products. Principal production today, however, is foundry sand for which there is an almost insatiable demand stimulated by the war program. The present plant is not merely designed to serve the market existing under the pressure of war conditions, but has been set up to take care of the demands of the post-war period.

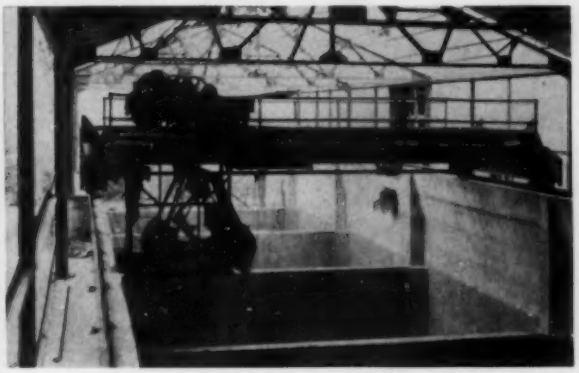
The silica company is a subsidiary of the Hartland Washed Sand and Gravel Co., under the management of the Palmer brothers, P. W. Palmer, president; and J. E. Palmer, vice-president. Many features of the silica plant incorporate practices and equipment arrangement reflecting the long experience of the owners in successful sand and gravel plant operation.

Ever since the Palmer brothers took over the property several years ago, the plant has been in process of modernization and improvement, stepping up production and increasing plant efficiency. This program was temporarily halted by a fire which destroyed part of the plant December 4, 1941, but production is now back in full swing.

The silica deposit is a very pure St. Peter sand formation located conveniently for shipments on the Chicago, Milwaukee, St. Paul & Pacific Railroad. There is about 12 ft. of overburden removed by a 1-cu. yd. Koehring shovel which is also used in the pit.

Blasting is necessary to bring down the silica and break it up for the 1-cu. yd. Koehring shovel which is also used to load the hopper of the field conveyor. Holes are drilled to a depth of 65 ft. with a well drill. Eight or ten holes are drilled about 18 ft. from the face and 18 ft., center to center. The shot usually brings down about 15,000 tons. A 60 percent Hercules dynamite is employed for blasting.

Material dumped to the 5-cu. yd. field hopper is fed by an oscillating type feeder to a section of belt conveyor that pivots at one end on a bearing plate so that it may be swung toward the bank being excavated. This section of 28-in. conveyor belt is 60 ft. long, and dumps into a hopper feeding another 60-ft. section of conveyor belt. This belt inclines up to a 9- x 36-in. Good Roads jaw crusher. Water is sprayed on the silica rock as it drops down the chute into the jaw crusher so that no dust is present. Throughs from the jaw crusher go to a 48-in. by 18-ft. rotary screen. All plus ⅛-in. material goes back, by way of two short conveyor belts, to a 20- x 24-in. Lippmann roll crusher. The product of the roll crusher re-



Left: General view of plant, showing drainage bins to the left; mill and screening building, center; and storage silos and Diesel power house, to the right. Right: Interior of drainage bin building showing traveling overhead crane and clamshell bucket for reclaiming silica

Looking at plant above quarry. Note field conveyor system, primary crushing and screening units, and pump house with long pipe leading up to plant. Dust collector is on the hill to the left

turns to the rotary crusher, closing the circuit. Minus ⅛-in. silica drops into a concrete pit where sufficient water is added to make a pulp so that it can be pumped by an electrically-driven Hydroseal pump to the plant. This pump has an 8-in. suction and 6-in. discharge with a capacity of 160 tons an hour.

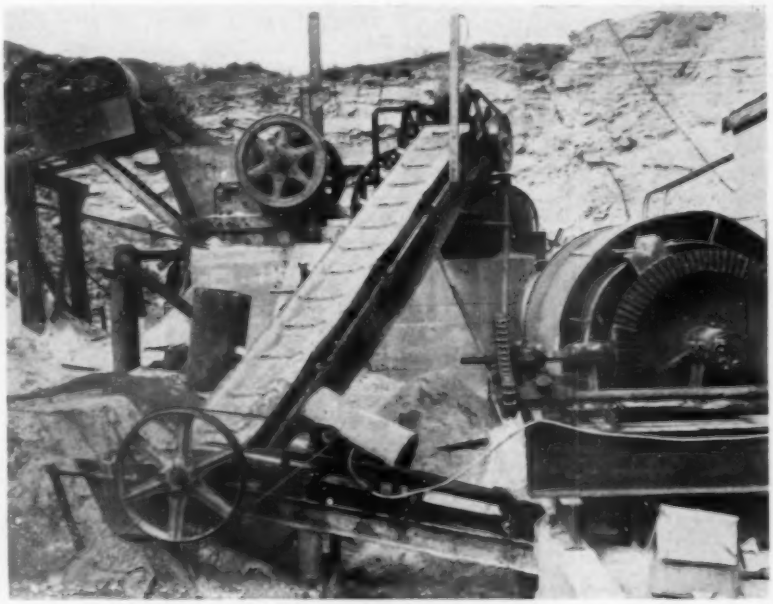
Pump Sand to Plant

The pumping system replaces a long conveyor belt which was discarded due to the difficulties in handling material in cold weather up a rather steep incline to the plant. The wet sand pulp is moved by 6-in. wrought-iron pipe to the top of the plant where it is fed into two 10-cu. yd. tanks. Hydraulic water at 40 p.s.i. is added in these tanks for cleaning and the removal of slimes, spray bars being located in the bottom of the tanks. When one tank is full, the other is used until the first has been emptied. Water is furnished for washing at the rate of 2000 g.p.m. by two Fairbanks, Morse centrifugal pumps having a 6-in. suction and 5-in. discharge.

Filled tanks are dumped by gravity into four drain bins, 20- x 30-ft. by 22-ft. deep. These drain bins are in a reinforced concrete structure, having drainage in the floor to a sump from which the water flows by gravity to a settling pond.

Over the drain bins is a 10-ton Yale & Towne traveling crane equipped with a 1½-cu. yd. clamshell bucket which reclaims the silica sand from the bins for transportation to a large dryer located in the same building at the end of the drain bins. The dryer, which is similar in design to those operated in the Ottawa, Ill., district, comprises a number of coils through which live steam is fed, the sand dropping through grates to an 18-in. conveyor belt below. Sand from the conveyor belt, 20-ft. centers, is chuted to the boot of a bucket elevator, 75-ft. centers, which carries the dried product to the top of the plant where it is distributed to a 3- x 6-ft. vibrating screen. Oversize from the No. 20 screen cloth is spouted to bins, and is sold as a sanding material for icy pavements. The minus material from the scalping screen is sized over six enclosed vibrators and then is spouted to bins. Products range from fines 80- to 100-mesh to 20- to 40-mesh. The screens are totally enclosed in steel sheathing with ducts carrying the dust to a Ruemelin dust collector located on the hill above the plant. Elevators, mill rooms and packing house also are kept comparatively free of dust by drawing off any dust generated to the dust collector. Various sizes from the screens are chuted to bins. Additional storage for sands is provided by three concrete stave silos 14 ft. in diameter and 30 ft. high.

There are two grinding mill departments. In a separate building are two 5- x 22-ft. Allis-Chalmers mills, each with a capacity of 1½ tons an hour, grinding to 140-mesh, which receive their feed from three storage silos. The other department on the ground floor of the plant has two 6- x 22-ft. Smidth mills, each with a capacity of 2 tons an hour, grinding to 140-mesh, which are fed from the



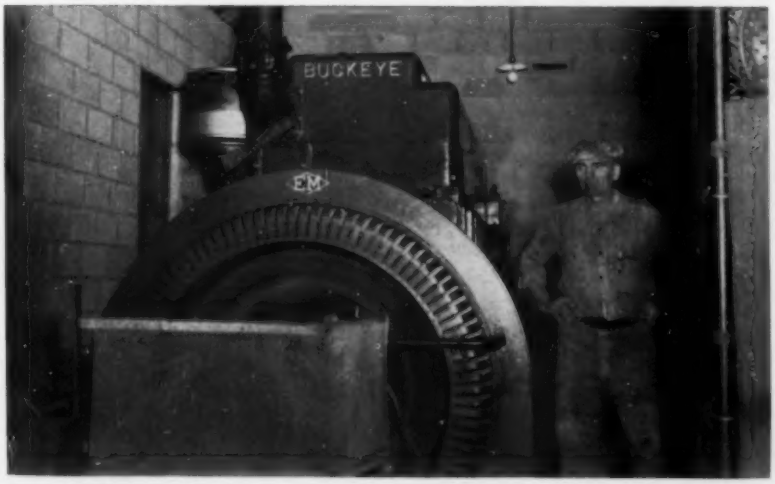
Close-up of field conveyor feeding jaw crusher, the throughs going to rotary screen and oversize goes back to roll crusher next to jaw crusher

bins above. Grinding is in open-circuit, the product going to bucket elevators for storage in plant bins. Below the bins is the latest type four-tube Bates bagging machine. A railroad siding parallels the plant building so that cars can be loaded in bulk from bin spouts or with sacked products. The sacked products are all packed in paper bags of 100-lb. capacity.

Use Their Own Grinding Media

When the French, Belgian and Danish grinding pebbles became unavailable due to the War, a very critical situation developed for the silica mills throughout the country. An energetic search was made by the Bureau of Mines and by silica producers for suitable grinding media in this country and Canada. The Browntown Silica Co. was very active in this search and tried many substitute pebbles from various sections of the country.

Strangely enough, however, the solution to the problem for this company was found practically in its "back yard." One day President P. W. Palmer noticed a ledge of rock near Baraboo, Wis., that seemed to offer a rock suitable for grinding media. Numerous tests were made which showed a high degree of silica purity, and surprisingly the Baraboo grinding media resulted in a greater production than with the French and Belgian importations. Perhaps the reason for this is the difference in the formation of the rock. French and Belgian pebbles have a tendency to grind quite smooth, almost to the point of being slippery, while the Baraboo rock has a tendency to be a little rougher and less slippery. As grinding is done by attrition, it is easy to see that rock that is less slippery would do better and faster grinding, resulting in a greater output per hour in each mill. The pebbles grind almost pure white so there is no color or other contamination getting in to the finished material.



One of the two Diesel-generator sets which furnishes power for all plant operations. This is a 450-hp. eight-cylinder unit connected to a 450 k.w. generator

These pebbles are blasted from solid rock and broken down to 2- and 3-in. size and then tumbled in mills to get into pebble shape. These pebbles are produced by the Baraboo Quartzite Co., Verona, Wis., and are used by many of the large silica producers in the United States, as well as paint, feldspar and pottery grinders. The rock is said to be the oldest and one of the hardest in the United States. It is pre-Cambrian in origin with no fossils present and it has a hardness of No. 7.

Generate Power with Diesels

All electrical energy for the plant is generated in its own power plant. At present a 450-hp. eight-cylinder Buckeye Diesel engine is direct-connected to a 450 k.w. Electric Machinery Co. generator to supply the necessary power. To supplement this supply, the company is now installing another Buckeye Diesel, a two-cylinder unit of 260-hp., driving a 300 k.w. Allis-Chalmers generator. Power line voltage is 440 alternating current.

The entire plant production is distributed by Wehenn Abrasive Company, Chicago, Ill., whose agents are

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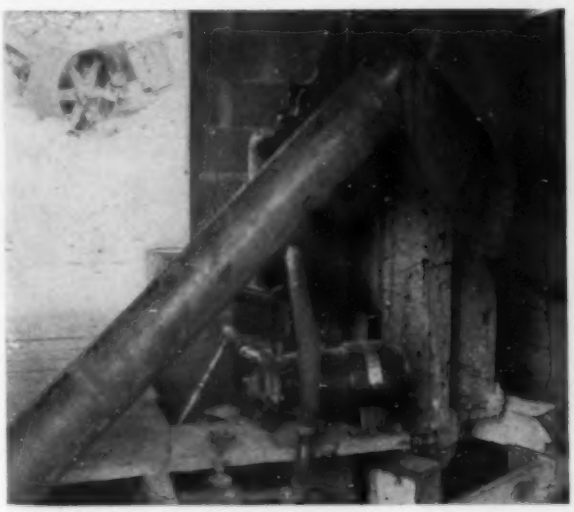
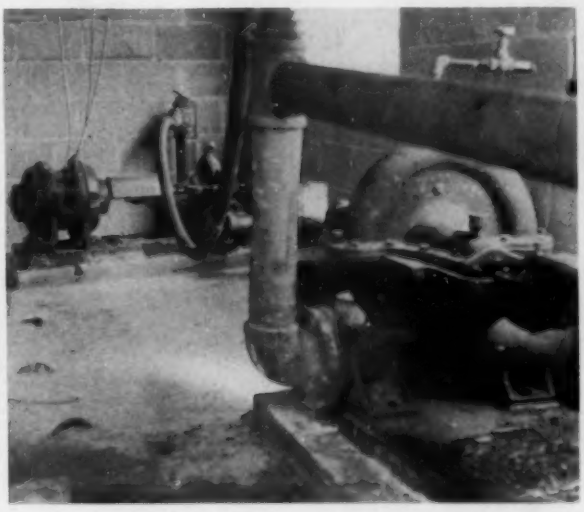
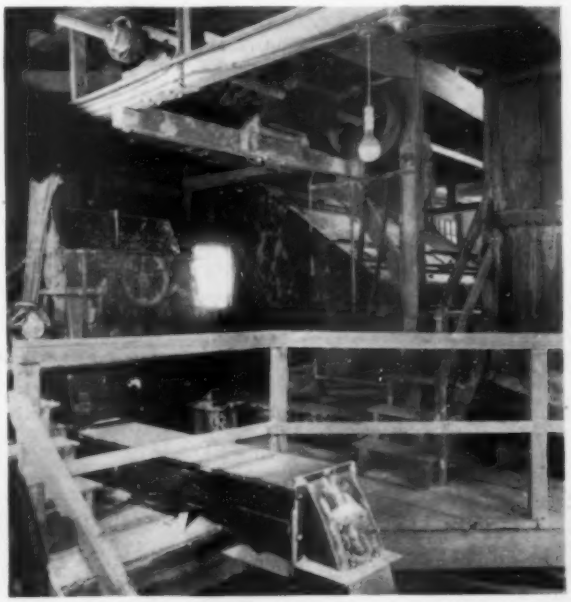




Left: Pump which moves silica pulp to plant at the rate of 160 tons an hour. Right: Two centrifugal pumps which supply hydraulic water for cleaning silica in two 10-cu. yd. tanks

Grinding Five Sizes in One Operation

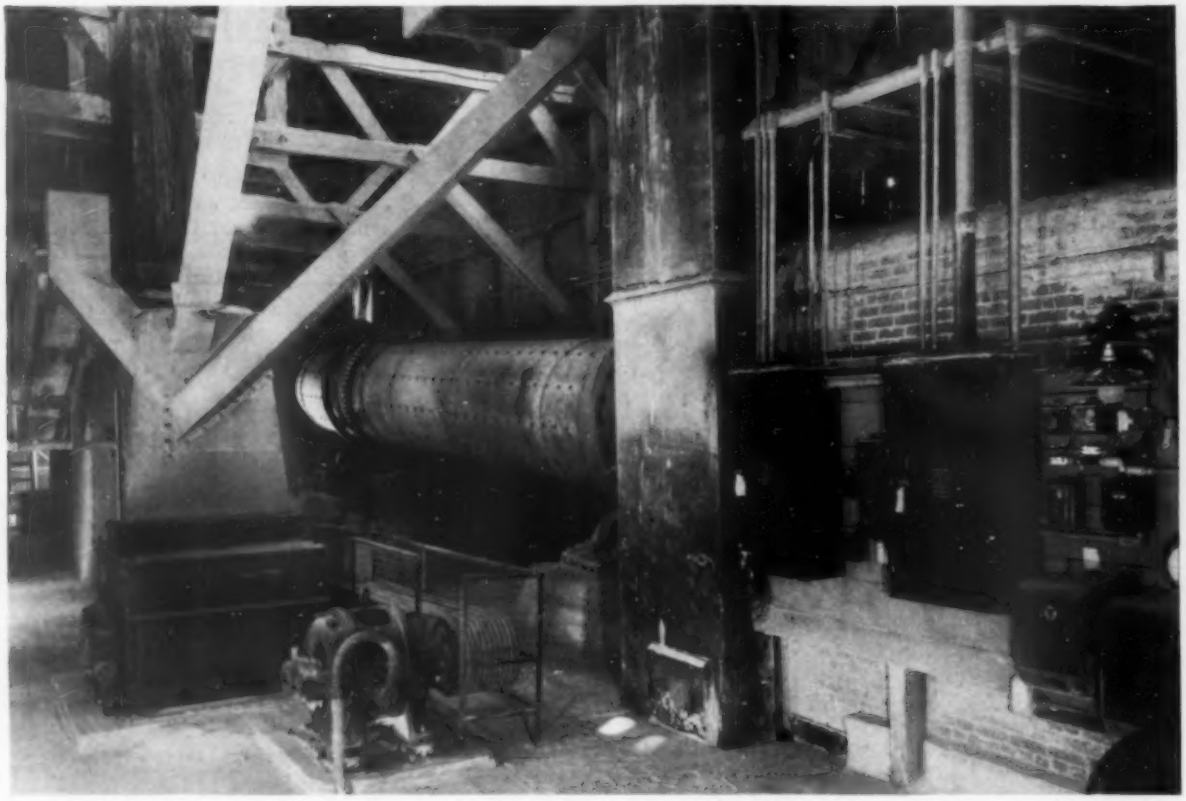
Thomasville Stone and Lime Co. has a flexible plant and equipment flowsheet to produce a variety of fine stone products



Double-deck vibrating screen having 8-mesh and 20-mesh screen cloth, rejects on 8-mesh going back to hammer mill

AN INTERESTING PLANT for the production of finely ground limestone products has been set up by the Thomasville Stone and Lime Co., Thomasville, Penn. While the plan and elevation details appear somewhat complicated, the flow sheet is designed to make five ground stone products in one operation without any one of them interfering with the other. This company also is a large manufacturer of lime.

By referring to the drawing, the flow of material through the plant can be easily followed. From the secondary crusher, producing minus 4-in. stone, the throughs go to the boot of an inclined bucket elevator, 59-ft., 10-in. centers, from which the mate-



Rotary dryer to the right; hammer mill to the left which is fed dried stone by means of bucket elevator and spout

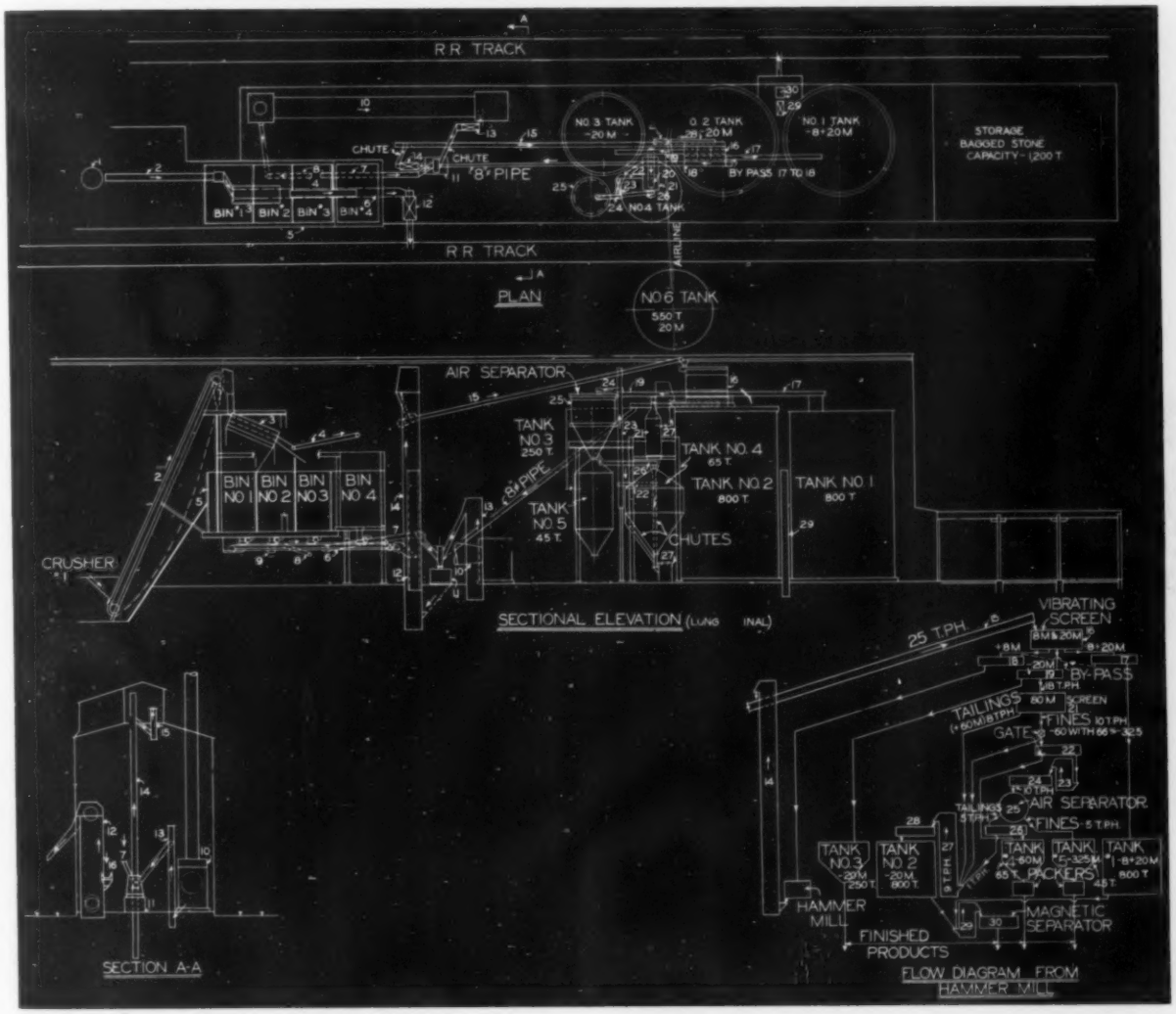
rial is distributed to a triple-deck vibrating screen with 2½-, 1¼-, and ½-in. openings. A short belt conveyor, 15-ft. 6-in. centers, takes the minus 4½-in. plus 2-in. rejects from the top deck to the No. 4 bin, the other three products from the screen dropping into Bins Nos. 1, 2, and 3.

If it is desired to load cars with these products, conveyor belt (6) beneath the four bins transports any of the four sizes to a bucket elevator, 58-ft. 9-in. centers, for loading by means of spouts. Another belt conveyor (7) reclaims stone from bins Nos. 3 and 4 to the hammer mill. Two other conveyors (8) and (9), reclaim stone from bins Nos. 2 and 3.

An average of about 24 tons per hour of minus ½-in. to minus 1¼-in. stone is moved from the bins to the rotary dryer from which it is fed by spout to the hammer mill. The hammer mill product goes to the boot of an elevator, 25-ft. 3-in. centers, which carries it to an inclined conveyor, 126-ft. 2-in. centers, which distributes its load to a three-deck vibrating screen where rejections on an 8-mesh screen are returned to the hammer mill.

Stone passing the 8-mesh and rejected on the 20-mesh goes to the No. 1 tank, and is called No. 1 stone, produced at the rate of three tons an hour. The stone passing the 20-mesh results in a production of about 20 tons per hour. The screw conveyor (19) handling the 20-mesh

Flowsheet of Crushed Stone Plant Operations



Plan and elevation details and flow sheet of operations at Thomasville Stone and Lime Co. plant which is making five ground products. 1—Secondary crusher making minus 4-in. stone. 2—Inclined Robins bucket elevator takes minus 4-in. stone from crusher to screen. 3—Triple-deck Gyrex screen. 4—Belt conveyor from screen to bin No. 4. 5—Raw stone bins. 6—Belt conveyor from bins Nos. 1 to 4 to elevator and railroad cars. 7—Belt conveyor from bins Nos. 3 and 4 to Pennsylvania hammer mill. 8—Belt conveyor from bin No. 3 to belt and thence to dryer. 9—Belt conveyor from bin No. 2 and thence by belt to dryer. 10—Rotary dryer. 11—Pennsylvania hammer mill. 12—Jeffrey bucket elevator from belt to railroad cars. 13—Link-Belt bucket elevator from dryer to hammer mill. 14—Webster bucket elevator. 15—Belt conveyor. 16—Moto Vibro double-deck screen, 8-mesh, 20-mesh. 17—Screw conveyor, 9-in. 18, 19 and 20—Screw conveyors, 12-in. 21—Hum-mer double-deck screen. 22, 24, and 26—Jeffrey screw conveyors, 9-in. 23—Jeffrey bucket elevator. 25—Sturtevant air separator. 27—Sturtevant, center-discharge, bucket elevator. 28—Screw conveyor, 12-in. 29—Webster bucket elevator. 30—Dings magnetic separator.

Above: General view of new stone plant where five sizes of finely ground stone are produced. Below: Other side of plant showing loading out facilities

throughs is tapped with a compressed air transport and 3 tons per hour is blown into the No. 6 tank, and this is designated as the No. 3 stone, leaving 17 tons per hour feed on the 80-mesh electric vibrating screen. Rejections on this screen go to the No. 2 tank, and is called the No. 2 stone. Stone passing the 80-mesh screen goes to an air separator, the tailings going to No. 4 tank, and is called the No. 4 stone.

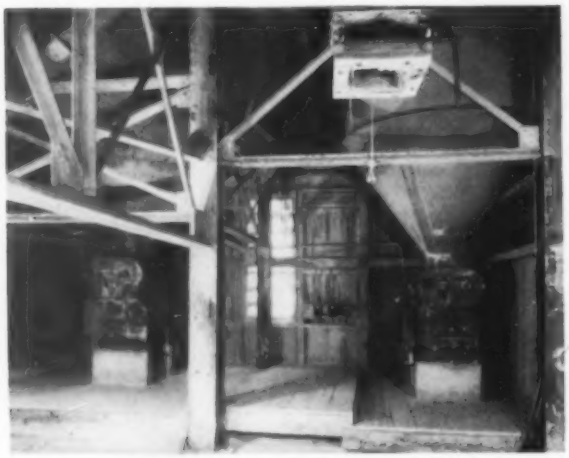
About 3 tons per hour of the finest material is removed by the air separator which drops it into the No. 5 tank, and is called the No. 5 stone. This product is 100 per cent minus 325-mesh. The entire operation provides an average production of 23 tons per hour of merchantable stone sizes in one operation.

Lose Plea to Dismiss Gypsum Anti-Trust Suit

A DECISION recently handed down by a three-judge federal court recently denied the plea of United States Gypsum Company and associated firms for a summary judgment dismissing the government's anti-trust case. The court ruled against the companies' arguments that because the defendants had been found innocent of monopolistic practices in criminal action brought by the government in district court, the civil action likewise should be dropped. The decision of the court said, "It seems to us that it would be wholly illogical to conclude that one charged with a violation of the Sherman Act could, by reason of an acquittal in a criminal case, thereby obtain immunity from any further remedy designed to bring about the discontinuance of a continuing offense." Other companies involved in the suit are: National Gypsum Company, Certainteed Products Corporation, the Celotex Corporation, Ebsary Gypsum Company, Inc., Newark Plaster Co., and Samuel M. Gloyd, doing business as the Texas Cement Plaster Co. The civil action will now be tried before a special three-man court on November 15. The complaint in the suit accuses the defendants of fixing prices for certain gypsum products and also of monopolistic practices in trade east of the Rocky Mountains.

N. C. Mica Operations

THE KEYSTONE MICA CO., Stoneville, N. C., has opened a new operation near Price which is known as the Evans mine. The new Evans mine is one of several mica operations being conducted by Keystone, of which C. P. Robertson is president and general manager. The company has ten mines under lease and is operating about half of them. Machinery for operation is leased from the Colonial Mica Corporation, agents for Metals Reserve Company, owned by the government.



Two of the bag packing machines for bagging fine stone products

Air separator receiving feed from bucket elevator and screw

CHEMISTS' CORNER

Specifications For Portland Pozzolanas

Part 1: Tests of cements composed of varying percentages of Portland cement ground with diatomaceous earth

By ALTON J. BLANK†

About nine years ago* the writer discussed the need of specifications to cover a number of special cements, then, as now being produced in the United States, and elsewhere. A year earlier Committee C-1 of the American Society for Testing Materials, appointed a special committee to study the question of special cements, then termed Blended Cements, but of more recent date referred to as Portland - Pozzolan cements. The activity of this committee during the eight years since it was formed has consisted, mainly, in changing the name of the special cements from "Blended" to that of "Portland-Pozzolan".

Under date of December 27, 1933, the following communication was received by the writer from the newly appointed Committee on Blended Cements:—

"Committee C-1 of the American Society for Testing Materials has appointed a special committee to study the question of blended cements. This type of cement is to include those cements in which portland cement is an essential constituent and which are used for general concreting purposes. It does not include blended cements used solely for masonry purposes. The special committee has been instructed to include in their studies the following:—

"(a) The need for such cements, (b) the purposes which they will fill that are not filled by standard portland cement, (c) available data as to the qualities of such cements, (d) where they have been used, (e) the results obtained in actual use, (f) and to report to the Executive Committee of C-1 their views as to the need of Committee C-1 preparing specifications covering such cements.

"As a member of this special committee I am writing to you with reference to the subject of blended cements in general and in particular your 'Atoyac' cement.

"Our committee asks for your cooperation and help in obtaining the information and data which we have been instructed to include in our studies as outlined in the second paragraph of this letter.

"One of the essential ingredients of most if not all blended cements is portland cement clinker. The quality of this ingredient is covered by standard specification. Is it not equally essential that the quality of other ingredients be defined and controlled by specification? For example, it is admissible that all metallurgical slags are not suitable for use in the production of Eisen portland and Hochofen types of blended cements. Similarly, I imagine that dolomitic limestone may not be satisfactory for use in the production of your 'Atoyac' cement. Nor for that matter do I assume any and all siliceous materials can be used in your process. In your article you have stressed the importance of durability. With respect to standard portland cements we have a background of many years experience both in the laboratory and in the field on which to base expectation as to durability. But when we come to more or less new products, or products made with one or more new ingredients, what test or yard stick should we give the purchaser with which to measure or judge this quality in the new products? What tests have you employed to measure the durability of your 'Atoyac' cement? It seems to me that a specification for blended cements should contain one or more requirements which either directly measure durability or provide some means of judging this quality in all such products.

"We realize that some blended cements will be offered as especially suitable for one or more particular types of use or exposure; for example, resistance to the corrosive action of sea water, low heat of hydration, low volume change, plasticity, or high early strength. Should such a specification provide tests for measuring these properties? Our committee will be pleased to have your comments on the various points that I have outlined. We would also be pleased to receive any information and data concerning your 'Atoyac' cement which you may care to send."

Blended Cements Are Not Pozzolanas

Under date of January 6, 1934, the writer's reply to the above was as follows:—

"In reply to your letter of December 27 would advise that I shall be very pleased to enter my views with reference to blended cements, and to go more particularly into details as concerns the manufacture and quality of our processed 'Atoyac' cement.

"Inasmuch as this will involve considerable data at hand, and the compilation of same, it is possible that several weeks will lapse before I shall be able to place this material in your hands.

"In connection with the production of the 'Atoyas' cement, and the 'Plastocement' masonry product, there have appeared articles in the July and September issues of *Concrete* and in the August 25, 1933, issue of Rock Products."

Under date of January 27, 1934, the writer's reply to the initial invitation to furnish data to the blended cement committee, as requested in their letter of December 27, 1933, was as follows:—

"I take pleasure in answering your letter of December 27, 1933, and the questions raised in connection with studies suggested for the special blended cement committee of Committee C-1, American Society for Testing Materials.

"Before entering into the manufacturing and quality phases of the

(Continued on page 104)

*Concrete, December, 1934. †Executive vice-president, Cementos Atoyac, S. A., Puebla, Puebla, Mexico.

No Delays for Winter

Certified Concrete Co., St. Paul, Minn., equips plant with efficient systems for heating aggregates and water during sub-zero weather conditions

By RALPH S. TORGERSON

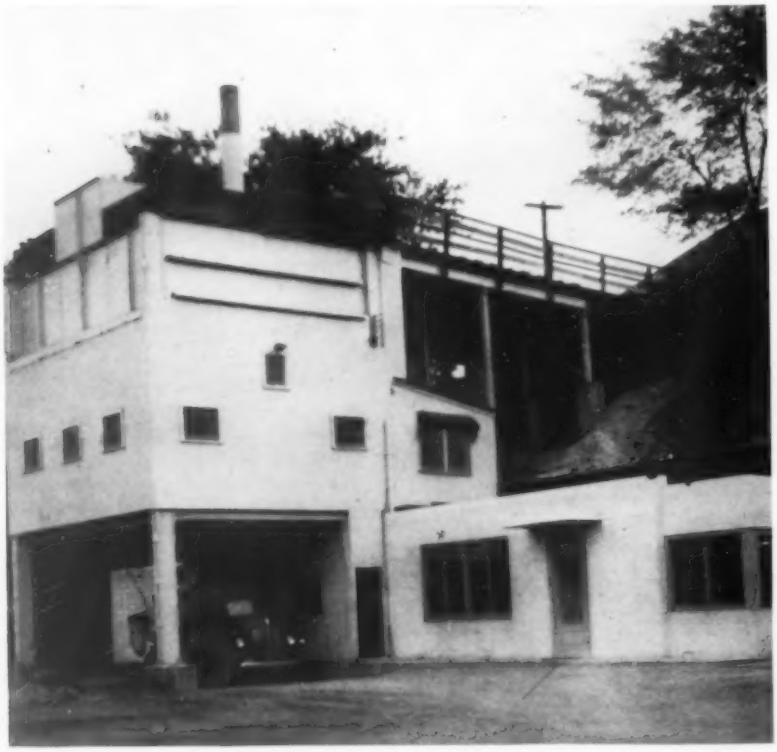
ABOUT seven years ago Arthur J. Bryce, president of Certified Concrete Co., St. Paul, Minn., took over an old, poorly-equipped and laid out ready-mixed concrete plant and proceeded with plans to construct a modern plant for operation under the severe winter weather conditions in this area.

The plant itself is strategically located in St. Paul within easy access to South St. Paul with its packing plants and industrial development, and it is also comparatively close to the downtown district of St. Paul. Truck hauls are therefore short, saving on equipment and time.

Another advantage enjoyed by this plant is its location with respect to terrain. The batching plant was constructed at the foot of a bluff near a parallel railroad siding, and aggregates are dumped into the steel compartment bins by trucks which back up over a trestle from the street level above. This eliminates the necessity of installing a conveyor belt or bucket elevator, the flow of materials through the entire plant being by gravity.

The entire construction is designed for permanence. The inclined trestle over which aggregates are hauled is supported by steel girder columns resting on concrete piers with a roadway laid over heavy timbers. A grizzly of old steel rails keeps trash and any oversize boulders from getting into the bins. All the Butler bins are of steel and the batching plant is entirely enclosed with steel sheathing. Batching plant and bins are supported by steel columns resting on concrete piers.

Billboard advertising gives prominence to telephone number



Batching plant receives aggregates by truck over ramp, above. Modernistic office building to the right constructed of concrete masonry

A very recent addition to the property is a modern office building constructed adjacent to the batching plant. It was built with Celocrete concrete block masonry obtained from Standard Building Materials Co., St. Paul, Minn., an affiliated concern in which President Bryce has an interest. This company also supplies sand and gravel to the ready-mixed concrete plant from a pit in South St. Paul. The general office is located to one side of the entrance, and Mr. Bryce has his private office to the right with a clear view of the entire yard. His office is very attractive with wood panel walls, and it is equipped with an intercommunication system so that he can keep in touch with the batching plant and cement storehouse.

Mixer trucks coming into the yard proceed to the cement storehouse where they receive their cement loads through instructions obtained from the batching plant superintendent by means of the intercommunicating system. The trucks are then driven under the driveway below the batching plant where water and aggregates are batched out accurately by Butler weighing equipment. A telescopic type spout released into the mixer drum opening by the dispatcher prevents spillage.

There are five Jaeger and five Blaw-Knox truck mixers, the majority of which are 2-cu. yd. capacity but the three new Jaeger units can carry 2½ cu. yd. All are of the cab-over-engine type on Ford chassis which gives the truck operator a very short

turning radius which is a convenience on many jobs where space is limited.

The batching plant has a four-compartment bin with a capacity of 200 cu. yd., three compartments for gravel and one for sand. Sizes of aggregates are: 1¼-in., ¾-in., and ½-in. gravel and torpedo sand. A Brunner Manufacturing Co. compressor supplies compressed air to the plant.

In excavating for a footing in the boiler room it was discovered that the water level came close to the ground level of the batching plant. It was therefore decided that a shallow well would be dug to supply the plant with a water supply. This well was lined with concrete pipe. A small centrifugal well pump was obtained which is driven by a 3-hp. type W. Fairbanks, Morse electric motor. In the batching plant above are two steel tanks of 250-gal. capacity to hold the well water. A 500-gal. tank supplies an emergency reserve from the city water system.

Arthur J. Bryce, president of Certified Concrete Co., seated at his desk in new office

Water and Aggregate Heating System

This plant is equipped with perhaps one of the most complete aggregate and water heating systems in the country. As shown in the illustrations, a series of steam pipes rise vertically from a steam main coming from the 50-hp. William Bros. boiler and enter the bin compartments at various levels so that any part of the bins can be heated without the necessity of heating other sections. Two other steam lines connect with Sims coils in the water tanks to provide water heated to 180 deg. F. during cold weather. An Iron Fireman stoker fires the boiler.

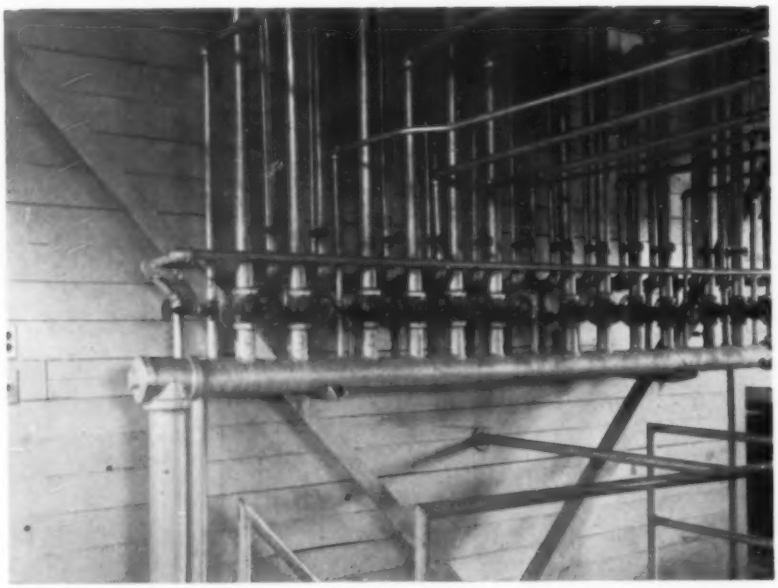
To one side of the batching plant control room is the office of the batching plant superintendent which is equipped with a Twin Phone and an R.C.A. intercommunicating system. The Twin Phone system connects with the cement storehouse permitting the superintendent to give directions for the amount and kind of cement going into each mixer truck drum. The R.C.A. system connects the batching plant superintendent with the office. Next to the superintendent's office is a waiting room for truck drivers where they may play cards and eat their lunch.

Laboratory equipment is available for making frequent moisture tests and sieve analyses. Tyler sieves are used. Supplies of mineral colors are also kept in the batching control room for mixing when colored concrete is ordered.

The cement warehouse receives bagged cement from railroad cars spotted on a siding paralleling the building to the rear. Different types of cement are available for any concrete specification. Considerable demand has come for cements with Vinsol resin admixture for pavements and sidewalks which are subjected to salt applications during the winter. Calcium chloride and high-early-strength cements are used during the winter. The warehouse also is equipped with a bag cleaner furnished by the Northern Conveyor Manufacturing Co. which has proved its worth in very substantial savings in cement. Approximately one percent of the cement is saved.

Every effort is made to use concrete that might otherwise be wasted. Truck mixers returning with part of a load dump the concrete into a chute from which it is poured into steel molds in which rock-faced and plain concrete block are cast. These

Part of the mixer truck fleet lined up near cement storehouse



Elaborate system of valves controlling steam coils to aggregate bins and water tanks

block eventually will be used to construct a new garage. Concrete cleaned out of mixer drums at the end of a job or the close of the day is used in pavement work around the yard and as a revetment on the sides of the bluff.

In the illustration is a large billboard advertising sign near the plant which emphasizes the telephone number and name of the company. This billboard is located so that automobile and truck drivers on one of the heavily traveled highways can see the sign for a considerable distance. The company also distributes memorandum pads with its name to contractors and other large users of concrete, and gives away leather notebook cases. Users are invited to get in touch with the company for filler note pads whenever they may be depleted, but fillers also are mailed out each month with statements.

Industrial Sand

(Continued from page 63)

located in all the important industrial centers of the country.

The original plant at Browntown was worked by the former White Rock Silica Co., starting in 1928. This company was headed by the late Robert Wehenn as president and his son, Allen C. Wehenn, as secretary, who now is president of Wehenn Abrasive Co.

Officers of the Browntown Silica Co. are: P. W. Palmer, president; J. E. Palmer, vice-president; and E. H. Martin, plant superintendent.

Plant Closed

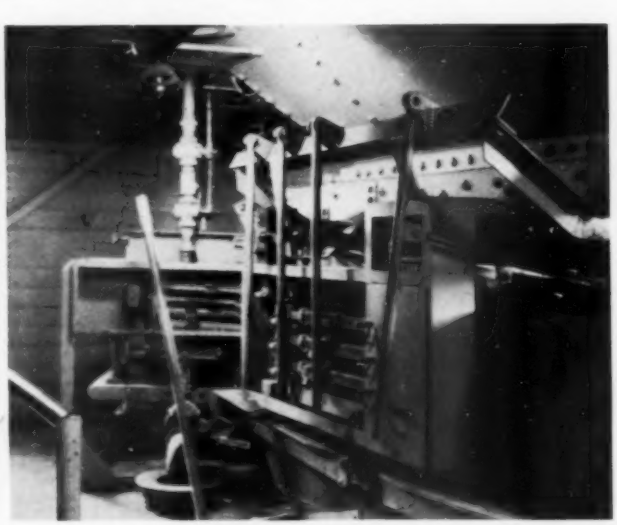
WARNER Co., Philadelphia, Penn., has closed its magnesia plant at Cedar Hollow. The company as agents for Defense Plant Corporation at the request of the War Production Board engaged to operate the magnesia plant being built with government funds for the purpose of producing refractory magnesia, then considered to be a much needed war product. The plant was approaching completion and tuning-up operations were under way when notice was received to discontinue.

All work was stopped immediately and steps taken to place the magnesia plant in proper condition for an indefinite shutdown.

It is the company's intention to proceed actively in research and development work, looking towards the post-war period, by putting the pilot plant on a production basis using the Murray process, and proving the commercial possibilities of various magnesium and calcium derivatives.

Fire at Grand Coulee

DAMAGE to machinery and building estimated at $4000 was caused by a fire in the gravel plant of the Bureau of Reclamation at Grand Coulee Dam near Mason City, Wash. This plant was nearly 85 percent completed when the fire occurred.



Left: Mixer truck dispatcher dumping aggregates from batcher hopper into drum. Right: Looking toward water batching equipment

Stepping Up Production for War

St. Clair Lime Co., Sallisaw, Okla., puts up-to-date improvements in old plant and increases capacity from 30 to 175 tons per day

By WALTER B. LENHART

WAR HAS CAUSED a heavy demand for lime. This is particularly true in the districts bordering on, and in the aluminum producing centers of the middle South. Like most other rock products industries, the lime producers in this area have been hampered by severe labor shortages, increased costs, and ceiling prices. Most of the plants west of the Mississippi river are unable to operate at full capacity and this shortage of lime has made itself felt in the quantity of essential war supplies produced in this area.

When the heavy demand for lime became apparent, the St. Clair Lime Co. at Sallisaw, Okla., called in Victor J. Azbe, lime consultant. They wanted more lime from their vertical, gas-burning kilns. One of the first things they did was to install his patented "center burner" system shaft kilns and to build an additional kiln using the same system. Production from the small old kilns increased from about 15 tons each to to 50 tons per day each.

The new kiln likewise showed a high production being capable of making from 70 to 75 tons per day more. Thus the tonnage increased to around 175 tons per day from an original capacity of 30 tons per day. As the production rose, the supply of labor diminished so changes in the method of handling both kiln stone and burned lime were next undertaken. The plant now has mechanical methods of delivering stone to the kiln and for handling the burned lime.

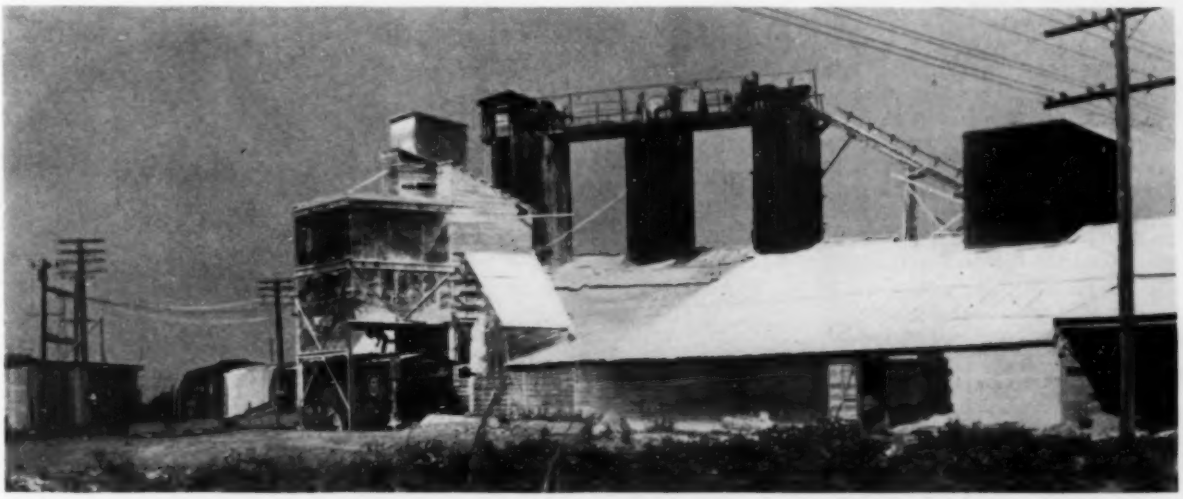
The "center burner" system, at this plant, which has been in operation since September, 1942, has met with every success. Gas consumption has remained at 5000 to 5500 cu. ft. per ton of lime. Each kiln is provided with a Westcott orifice meter for recording gas volumes and pressures. A Leeds & Northrup Micromax recording pyrometer with I. C. couples records the temperatures of the exit gases. Indicating draft gauges are also used.

Each kiln is provided with a 60-in. fan for induced draft. The fans are driven by G.E. motors through V-belts.

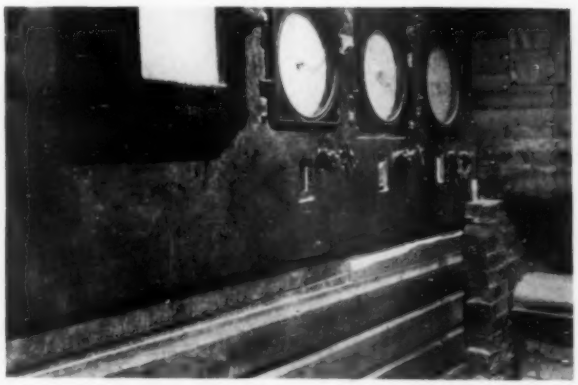
The carborundum brick arch construction, a part of the Azbe system, has held up in fine shape and the owners consider these brick, in that zone, to be practically indestructible and are considering using carborundum brick in an 8-ft. section of the burning zone where abrasion and heat conditions are severe. This may be a considerable investment but certain features of the proposal have merit. The cost objections may be ironed out later. However, the proposal shows the willingness of the company to produce needed lime continuously and in required tonnages regardless of initial investment costs.

Add Portable Crusher

The great increase in the capacity of this plant coupled with the demands for high calcium limestone



Overall view of St. Clair Lime Co. plant at Sallisaw, Okla. Note method of handling stone to shaft kilns



Instruments for furnace control. Left: Indicating draft gauge at extreme left. Right: Micromax recording pyrometer to record exit gas temperatures followed by three circular gas meter recording instruments, one for each kiln, to indicate volume and pressure of gas

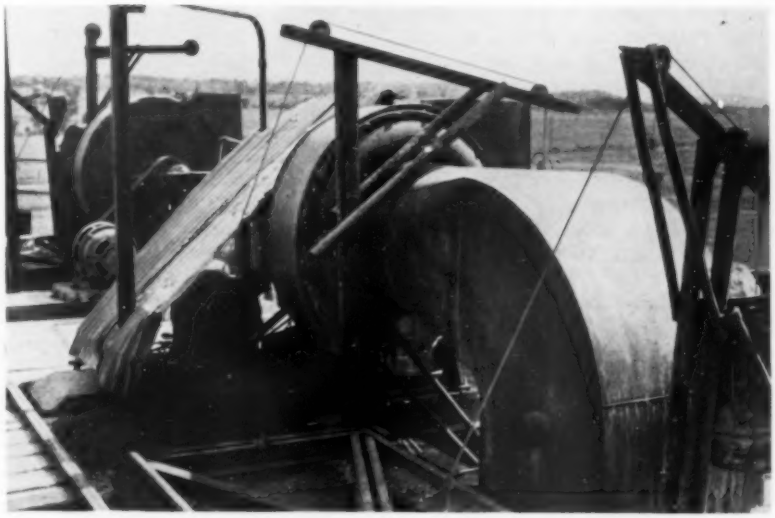
made it necessary for the St. Clair Lime Co. to increase its stone supply rapidly. In order not to have delays caused by obtaining crusher plant equipment made from vital materials, the M. O. Weaver Co., Inc., Des Moines, Iowa, was engaged to move a high capacity portable plant into the quarry located at Marble City, about 10 miles north of Sallisaw, Okla.

At Marble City the stone for this plant is produced through a Cedar Rapids Morock plant manufactured by the Iowa Manufacturing Co., Cedar Rapids, Ia. The 4- to 6-in. stone is delivered to standard gauge gondolas at the Sallisaw plant, and the oversize material shipped to the Oklahoma City plant of the same company, for burning in natural draft kilns, and the undersize is shipped to aluminum plants in the Southwest. The crushing plant is capable of handling 250 tons per hour of these three sizes.

The drilling is done with Ingersoll-Rand wagon drills; the stone loaded with 1½-yd. P. & H. shovel, which loads into Koehring Dumptors to be transported to the crusher. From the crusher the rock is hauled 2½ miles in 10-yd. Gallion dump trailers, powered by White and International motor trucks.

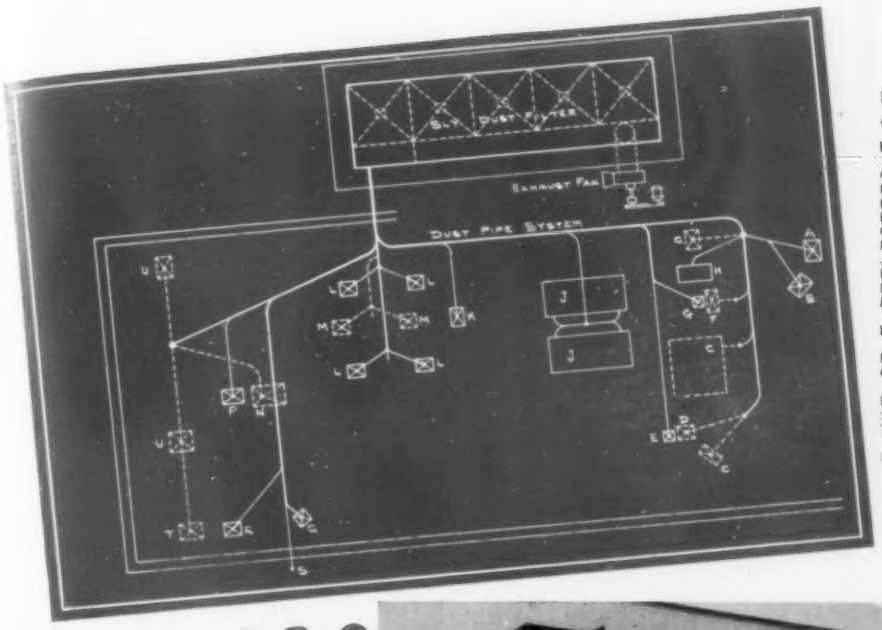
At the lime burning plant, a new 30-in. Link-Belt pan conveyor has been installed for unloading stone. The 45-ft. long conveyor is so installed that bottom-dump gondolas feed to it direct and deliver the kiln stone to a hopper-bottomed, 2-ton capacity car serving the kilns. The conveyor is driven by a 15-hp. General Electric motor through Gates V-belts. This installation will enable the operators to keep the kilns full of stone with a minimum of labor.

A second inclined Link-Belt pan



Induced draft fans on top of kilns driven by electric motors through V-belts

Draw gates under three shaft kilns

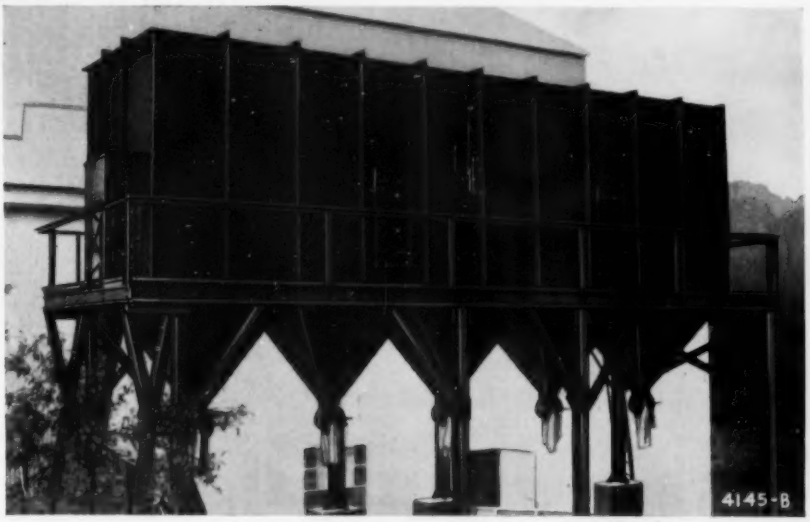


LEGEND

A Discharge belt conveyor to scalping screen
B Discharge belt conveyor to storage bin
C Discharge of roll crushers
D Boot of bucket elevator
E Head of bucket elevator
F Boot of bucket elevator
G Head of bucket elevator
H Vibrating screen
J Two double vibrating screens
K Head of bucket elevator
L Magnetic separators
M Discharge magnetic separators to belt conveyor
N Discharge belt conveyor to bucket elevator
P Head of bucket elevator
Q Discharge bucket elevator to belt conveyor
R Head of bucket elevator
S Bulk carloading
T Discharge belt conveyor to bucket elevator
U Discharge of "feeders" to belt conveyors

SLY DUST CONTROL

IMPROVES WORKING CONDITIONS— UPS PRODUCTION



★ This Sly Dust Control System, for a large feldspar producer, collects dust caused by handling feldspar, particularly in its crushing, screening, conveying, storage and loading as indicated by the accompanying sketch.

Prior to the Sly installation, the dust presented a serious problem. The company consulted us. Definite air volumes were determined and the system installed accordingly—resulting in improved working conditions and increased production.

Sly Dust Filters offer certain exclusive advantages which help enormously in efficient operation:

1. Greater filtering capacity because of more filtering cloth
2. Taut bags (patented) save power and improve dust removal
3. Bags more easily replaced
4. Automatic control (any degree) minimizes or entirely removes the human factor
5. Simpler shaker mechanism results in savings in maintenance and operation

Write us fully. We shall analyze your problems and tell you exactly what can be accomplished. Sly Dust Control pays for itself.

THE W. W. SLY MANUFACTURING CO.

4746 TRAIN AVENUE **CLEVELAND, OHIO**

SLY
INDUSTRIAL DUST CONTROL

Loading bulk lime from bins above into railroad cars

Pan conveyor handles stone from pit beneath tracks, dumping into two-ton capacity cars

conveyor has been installed for handling the burned lime. This acts as a sorting belt as well.

The burned lime is drawn from the cooler of the kilns directly into 5-ton capacity steel cars that ride a track under all kilns. The car is pushed to the toe of the pan conveyor where it is dumped and the burned lime flows by gravity on to the pan.

After being graded on this pan the lime is delivered to a Gruendler hammermill. The crushed lime is delivered from the hammer mill to a 55-ft. 16-in. Link-Belt continuous belt-bucket elevator, which discharges into an overhead storage bin. From this bin the crushed lime can be loaded directly into hopper-bottomed cars or delivered by a screw conveyor to the hydrating plant. Bulk lime is discharged from the same draw car on to another conveyor which was installed after this plant was inspected and which delivers the lime directly into box cars.

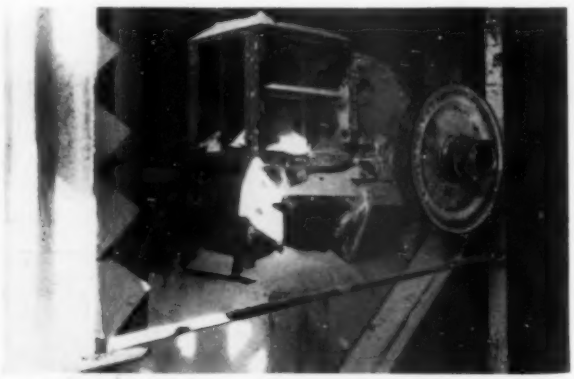
The Gruendler hammermill, as well as all the other equipment, which formerly operated with the sleeve bearings, has been equipped with SKF and Fafner ball bearings, by R. C. Williams, superintendent. He has found this changeover from sleeve bearings to be very desirable, and he sees enough saving in power to quickly repay the added investment.

The home office of the St. Clair Lime Co. is in Oklahoma City. The company has a two-kiln plant there as well as a hydrating plant. The company was established in 1933. It is owned by Homer Dunlap, Jr., and members of his family.

Cement Publicity

UNIVERSAL ATLAS CEMENT CO., New York City, has issued a "Handbook of Concrete Construction," which all users of concrete will find useful. There are 274 pp. of instructions, data and tables covering mixing and placing concrete for all ordinary construction, ready-mixed concrete and concrete products. This is the 8th edition and is the same handy pocket size 4½ x 7¼ in.

In the "Dedication" or foreword it is stated that this is the 53rd anniversary of what is now the Universal Atlas Cement Co. (starting with the Atlas Portland Cement Co.) and in that time the company has manufactured 700,000,000 bbl. of cement.



Left: Car in background shuttles under lime kilns, and discharges to the sorting pan conveyor in foreground. Right: Pan conveyor delivers lime to pulverizer

Pouring 15 Acres of Floor Slab, AT WAR SPEED, Called for Mobile Jaeger Truck Mixers...

that's why THE CALL WILL BE FOR JAEGER TRUCK-MIXED CONCRETE FOR POST-WAR BUILDING!

This war, which has taught armies the value of mobility in firepower, has shown the construction industry the advantages of the mobile truck mixer.

On innumerable war projects like the above, Jaeger Truck Mixers have demonstrated more efficient mixing and placement of concrete to the architects, engineers and contractors who will dominate future construction in America.

As an established "ready-mix" operator, your post-war advantage is assured provided you continue to maintain satisfactory service, for the duration, with your present mixer fleet.

To get the longer service that is built into your Jaeger Truck Mixers: (1) Make each driver responsible for his unit. Send for Jaeger Manuals and insist on operation, cleaning and lubrication as specified therein; (2) Arrange with your Jaeger distributor for a regular 30-day check-up on every machine.

THE JAEGER MACHINE CO.
603 DUBLIN AVE., COLUMBUS, OHIO

NEARLY NEW CONCRETE BATCHING PLANT

Capacity 250-350 Cu. Yd. Per Hour . . . Available for Immediate Delivery

Complete Butler Concrete Plant. Excellent condition, used only 7 months. Adaptable for either commercial or construction use where high rate of concrete pour may be required. Equipped for manual, semi-automatic or automatic operational control. See details below.

BATCHING BIN. Bin—250 yd. capacity—190 yd. 3-compartment aggregate 400 bbl. cement.

2 BUTLER CEMENT STORAGE BINS. 2,000 bbl. capacity, 2-compartment, 3,000 bbl. capacity, single compartment. All bins equipped with air jets and steam jets.

BATCHERS. 1 Butler aggregate 5 yd. capacity, complete with beam-type scale, manual operation.

1 Butler cement 3,000 lb. capacity, complete with beam-type scale, manual or automatic operation.

1 Butler water batcher 200 gals. capacity, beam-type scale, complete with 400 gal. surge tank and valves, manual or automatic operation.

ELEVATOR & TRACK SCREW. 300 bbl. per hour capacity, screw 37 ft. long, equipped for either box car or hopper car cement delivery. Complete with 20 hp. electric motor.

CONVEYORS. 1 Barber Greene 36" inclined conveyor 237 ft. long, equipped with: 50 hp. Century motor; one 40 yd. track hopper; one 20 yd. track hopper; one 20 yd. truck hopper. All necessary A frames, trusses and supports included. All hoppers equipped with discharge gates.

1 Barber Greene 36" horizontal conveyor 180 ft. long. Complete with 18 double clam-type fill valves, 20 hp. Century electric motor complete with trusses.

1 Barber Greene 36" inclined conveyor 60 ft. long. Complete with 15 hp. electric motor, trusses and supports.

All conveyors in excellent condition; two-way Alemite system of lubrication; band-type brake; pivoted distributor, ground level controlled. Conveyors operated under cover while in use. Idler take-up and return idler rollers in good shape. Extra length new 500 ft. belt available.

MISCELLANEOUS. Collecting hopper under batcher, 5 feet cement screw feeder complete with motor for automatic control of cement. Traveling hopper for charging batch trucks. Extra cement buckets, drive chain elevator chain for cement elevator and track screw, etc.

Also 28 Late Model Transit Mixers

12—1942 Model Jaegers—High discharge, separate engine drive with two-speed transmission. 8 mounted on 1942 Dodge six wheelers, good rubber, excellent condition.

10—1942 Model Smiths—High discharge type. These mixers were used only 6 months.

Also 6 — 1938 Model Smiths — High discharge type. 3 mounted on 1938 Autocars, 2 on Macks and 1 on White truck. All single axle drive in good condition, with good rubber.

MOTOR TRUCK SALES AND EQUIPMENT COMPANY

Telephone: CALUMET 1255

2435 COTTAGE GROVE AVENUE **CHICAGO, ILLINOIS**

CONCRETE PRODUCTS AND CEMENT PRODUCTS

Overhead Mixing Speeds Up Operations

Cement Products Co., Mansfield, Ohio. Batches and mixes concrete on mezzanine floor above battery of block machines

DIVERSIFICATION

Manufactures and Sells All Building Supplies

J. P. Burroughs & Sons, Inc., Flint, Mich., produces sand and gravel, ready mixed concrete, and concrete block. Now building sand-lime brick plant

Roy Horning, president of the company

ONE OF THE OLDEST and best-known companies in Flint, Michigan, is the firm of J. P. Burroughs & Sons, Inc. Their first interest was in the elevator business and since then they have branched out into the marketing of coal, lumber, paints and various other building materials. Other departments which have been added are a concrete block plant, a ready mixed concrete plant, and more recently a small sand and gravel operation. The company is now constructing a sand-lime brick plant. This, one might say, completes a cycle wherein the various manufacturing and merchandising services, as related to the rock products industry, become one unit.

The company, which has been in the ready mixed concrete business about a year and one-half, is a member of the National Ready Mixed Concrete Association. Located near the heart of the down-town section of Flint, the ready mixed concrete plant is adjacent to the company's lumber yards. Main offices are at 419 Grand Traverse.

Above: Small capacity sand and gravel plant; all movement of material is by gravity except one conveyor belt. Below: Close-up of screening unit equipped with double-deck, 3- x 6-ft. vibrating screen

Batching Plant

The batching plant has steel Butler bins enclosed in a frame structure. Aggregates are delivered by truck and discharge direct to the bins via a ramp as the plant is located at a lower street level making the approach easy from the street above. There are three aggregate bins and two for bulk cement. Bins are so designed as to be sufficiently wide to permit three trucks to be dumped at the same time. The batching and weighing equipment consists of three separate Butler installations, one for aggregate, one for the cement and one for water. The plant is well laid out with ample room for the operator. One feature, not encountered often in ready mixed concrete plants, is the use of an inclined screw conveyor for delivering the cement to the scale hopper. This is an 8-in. diameter screw and is driven by a 7½-hp. Howell motor through a Gates "V" Belt drive. The use of a screw inclined so that the cement has to travel up-grade has an advantage in that it prevents flooding and enables the bins and other items that make up the assembly to be less cramped as to working space. The company is well satisfied with the installation.

At the outset the company had six Jaeger mixing trucks but later four more were purchased, making a fleet of ten trucks. Each of the mixer

drums is driven by a Hercules motor.

The company has enjoyed a very good business since the plant was built, and though it has slacked off slightly due to completion of defense plants in the area, a fair volume of business is still being maintained. Ready mixed concrete is sold on the basis of strength. Concrete strengths are 2000 lb., 2500 lb. and on up, each having a definite delivered price so the buyer can select what he thinks best suits his needs and pay for what he gets accordingly.

The ready mixed operations are conducted under the name of the Burroughs Transit Co., with Roy Horning, president.

Making 3000 Block Per Day

The concrete block plant is an older institution, and is located at 12th Street, near Beach. The plant has a capacity of 3000 block per day and has three Anchor machines; one 8-in., one 12-in. and one slab machine. This plant may later be expanded. At present only sand and gravel aggregates are used for block as there is a scarcity of cinders.

Sand is delivered to the plant from the company's own plant by trucks. Bagged cement is used. These materials are elevated to wood bins. Under the bins are two Ideal concrete mixers mounted on a small flat car, and the mixers can be moved back and forth over the desired machine.

The "green" block are placed on wheeled racks and can be sent to any of five steam curing rooms. From the curing rooms the trucks can go to the outside storage yard over a track system. Eight men, including truck drivers, are employed.

Max Springer is manager, Walter Love is sales manager and Les Beaver is superintendent of the block plant.

Sand and Gravel Plant

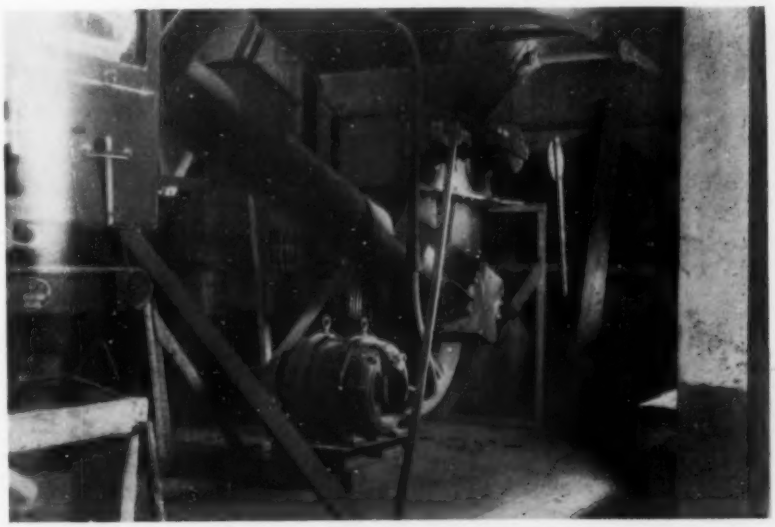
The company is proceeding with caution in its sand and gravel plant, and for a while the company is only attempting to supply its own needs. The plant and pit, which is located 17 miles south of Flint, was formerly operated by the Miller Gravel Co. A. Miller is still associated with them in the lease of the pit. In addition to the permanent plant, a Barber-Greene portable unit is operated by the company.

At present the plant operates dry but a well has been sunk to 250 ft. and an ample supply of water is available. At the first opportunity the operators intend to change over to washing.

(Continued on page 84)

Concrete block from plant move by narrow-gauge track to storage yard

Batching plant of the Burroughs Transit Mix Co., ready mixed concrete subsidiary. One of the fleet of ten mixer trucks



Inclined screw conveyor delivers cement to the scale hopper

Selling Concrete Block In Los Angeles Area

Graystone Tile Co. carries complete line of building supplies to meet contractors' requirements

Operator of small vibrating block machine pivoting mold into position

IN 1930, J. W. Schulze, a successful contractor, decided to engage in the manufacture of concrete masonry units under the name of the Graystone Tile Co. He built a small plant in North Hollywood, near Los Angeles, Calif., and installed a small vibrating block machine. His products grew in popularity, making it necessary to add a Flam vibrating block machine.

Increasing business made it advisable to build a new plant in 1941 on a 15-acre property on Lankershim Boulevard which permitted ample yard storage for cured products. Its location also was advantageous as it offered easy access to one of the principal traffic arteries serving the Los Angeles area and the products could be advertised to thousands of passing motorists. In addition to concrete masonry units, Graystone Tile Co. also carries a supply of many building items, such as lime, cement, flagstone, drainage and sewer tile, etc., for contractors. The sale of one item stimulates the sale of other building materials.

When the new plant was built, a new Flam machine was purchased. The two Flam machines have a capacity of 3000 4- x 8- x 12-in. units or equivalent size. The company makes 4- x 4- x 12-in., 4- x 6- x 12-in., 4- x 8- x 12-in., 4- x 6- x 16-in., 4- x 8- x 16-in., and 4- x 4- x 16-in. units. Solid units for corners also are made. These are the popular sizes in this area, the 8- x 8- x 16-in. units not having much demand. So-called slump tile units also are manufactured in heights up to 3½ in. Aggregates are ⅜-in. top size gravel and minus ⅛-in. sand. Trucks haul this material up a ramp immediately back of the plant, and dump into a two-compartment bin, the sides of which have been constructed of concrete block. Lever-operated slide gates release the aggregates into a skip bucket which dumps into a 25-cu. ft. Besser mixer. A "waterproof" cement is used in the concrete mix.

Two men operate the Flam machine, one to remove the vibrated concrete block and the other to handle the completed units on wooden pallets to a long roller conveyor leading out to the yard storage stockpiles. After remaining overnight, the wooden pallets are removed and the masonary units are cured under dampened burlap sacks for three or

(Continued on page 84)

Left: Aggregate bins reached by ramp. Skip from mixer shown in the background. Right: Slide gate arrangement for handling two sizes of aggregates into skip bucket

Concrete Masonry Units Adapted to any Architecture

THE TYPE OF HOMES WAR BONDS WILL BUY

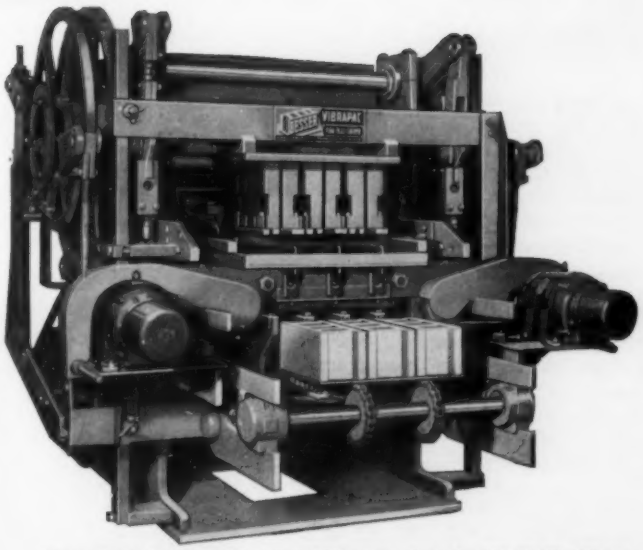
Vibrapac concrete masonry is the most serviceable and most flexible building material ever known. Vibrapac concrete masonry has become standardized for quality and durability as a building material.

In the hands of skilled architects and builders, Vibrapac concrete masonry has demonstrated its possibilities of unlimited variation in general architectural design and effect.

If you want exterior wall insulation, soundproof interior walls in homes, hotels and apartments, acoustically corrected interiors in business and public buildings—special Vibrapac concrete masonry units will provide these features.

●

After peace, Victory Bonds will buy Vibrapac concrete masonry homes by the thousands—made of material as sound as the Victory Bonds you own.



Besser Super Automatic Plain Pallet Vibrapac. Capacity 600 8"x8"x16" per hour made 3 at a time on one plain pallet. Smaller units made in large multiples on the same pallets.

Important Patent Notice

Licensed under the Gelbman basic vibration patents.

Undirectional vibration licensed under Flam patents.

The Vibrapac combines vibration with exclusive patented Besser Plain Pallet principle.

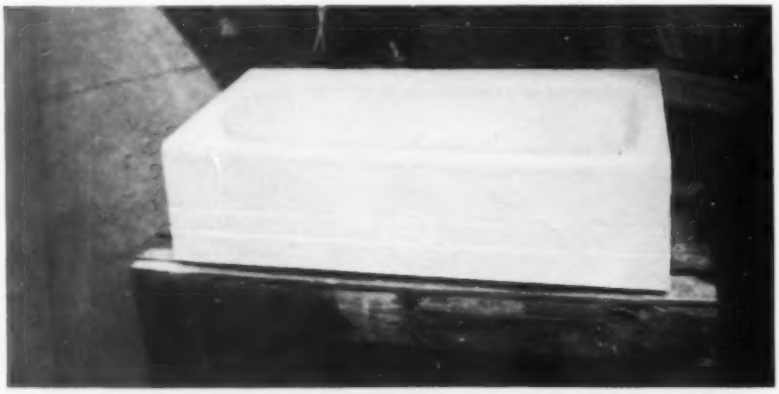
BESSER MANUFACTURING CO.

210 Forty-Third St. • Alpena, Mich.

Complete Equipment for Concrete Products Plants

THE SAVING IN PALLET COST WILL PAY FOR A BESSER VIBRAPAC PLAIN PALLET STRIPPER

CASTING WHITE CONCRETE BATH TUBS



Above: Finished concrete bath tub with white, smooth, hard surface. Below: Moulds used for casting the tubs

Olympian Cast Stone Co., Seattle, Wash., making light-weight concrete bath tubs

ANOTHER STEP has been taken in the perfection of a concrete bath tub which is expected to offer real competition to the cast iron enameled bath tub. Due to the scarcity of metal for housing imposed by W.P.B. allocation orders, the building industry has turned to substitute materials. The manufacturers of concrete products met the challenge, and they are now turning out some excellent examples of workmanship. About six or seven plants have cooperated in the development of this new tub.

Olympian Cast Stone Co., Seattle, Wash., is now manufacturing concrete bath tubs by methods recently perfected by the Cast Stone Institute and pioneered by Otto Buehner & Co., Salt Lake City, Utah. The story about the manufacture of concrete bath tubs by Otto Buehner & Co., appeared in ROCK PRODUCTS, December, 1942, page 103. The Olympian company is owned and operated by two enterprising brothers, L. and A. W. Swartz.

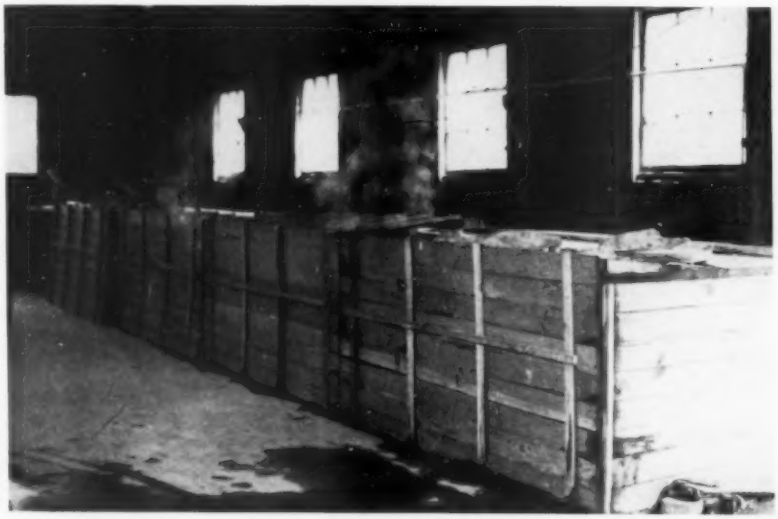
The tubs made by the Olympian Cast Stone Co. have the same white dense, hard finish, and to all appearances the concrete tubs are the same as the standard enameled cast iron tub. Tests indicate that the material becomes harder with usage. However, to manufacture these tubs it is necessary to obtain an extremely white finished cast, requiring the utmost care and cleanliness in the manufacturing operation. A dense cast, free from pockets and holes, is essential. This was accomplished by preparation of the mould, by careful experimentation with the mix and curing as well as in the removal from the form.

Surface pores must be completely closed to aid in cleansing and to avoid water saturation. This has been accomplished with the use of a new synthetic filler known as "Kro-Nite" manufactured by the Vestal Chemical Works, St. Louis, Mo.

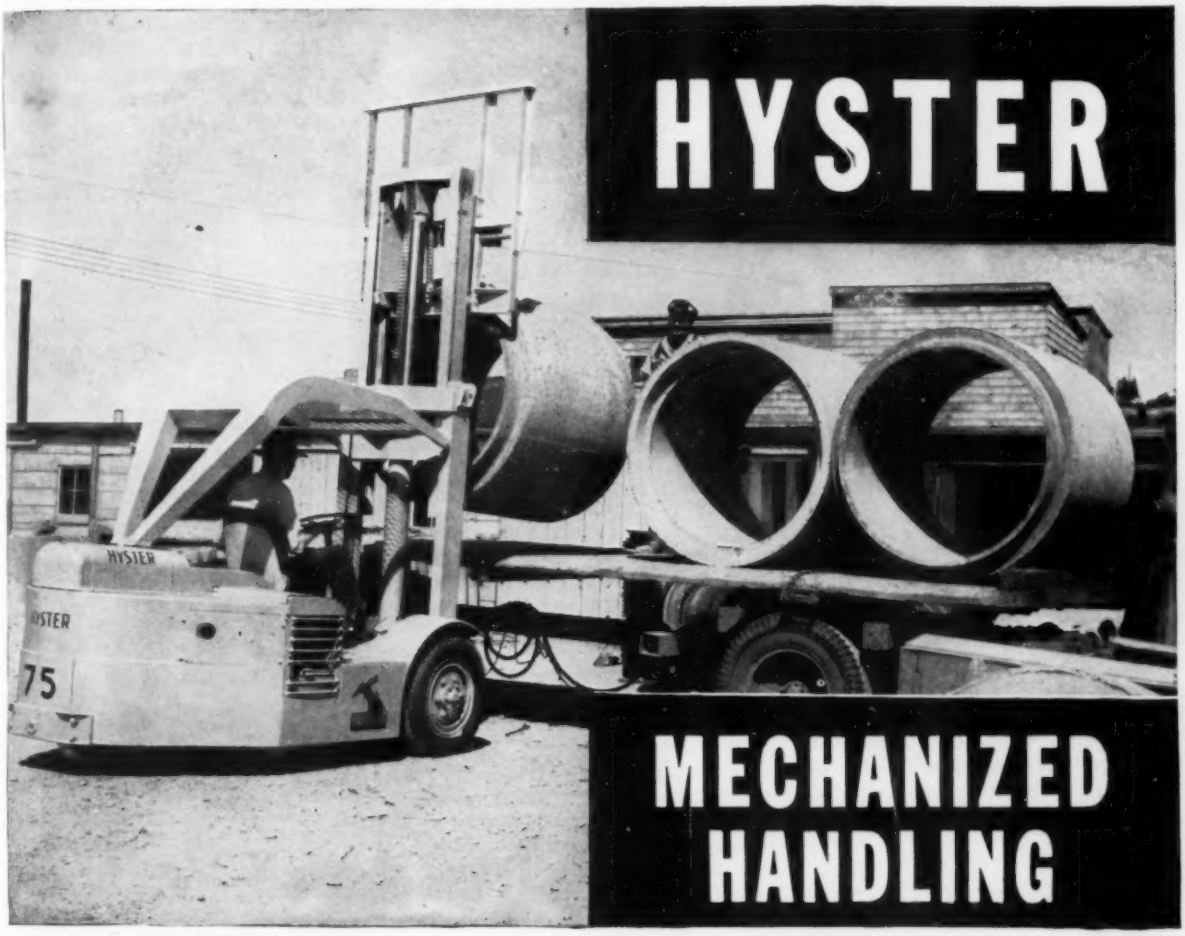
The new bath tub will market competitively with lowest cost metal bath tubs, and its present weight does not exceed 450 lb. This compares favorably with the metal bath tub which weighs approximately 400 lb., and experiments are under way to reduce the concrete bath tub weight. Lightweight aggregates have aided in this accomplishment.

Manufacturing Methods

When the first tubs were made for test, a plaster model was prepared, states a recent article in *Northwest Plastering Industries*. While this served admirably in the test work, it was later found that models could also be made from an actual metal bath tub, and both methods are now used. *(Continued on page 84)*



Steam curing chest in which cast concrete tub moulds are placed for 24 hours



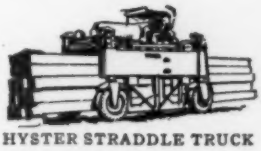
PNEUMATIC TIRED LIFT TRUCKS

HANDLING—the largest item of cost in the production of concrete products—can be done faster and far cheaper with *pneumatic tired* lift trucks. They can operate on graveled roadways or unpaved storage yards to carry finished material from the kilns to the storage yard—pile it high to save yard space—and load it onto platform trucks for highway transportation with a minimum of hand labor. In the accompanying photograph a "HYSTER" 75 Lift Truck is loading out a truck load of 54" culvert in a graveled yard.

HYSTER lift trucks range in sizes from 2000-lb. to 15,000-lb. capacity. Each is equipped with pneumatic tires for smooth operation over rough surfaces; full reversing transmission so it can be driven as fast in reverse as forward; telescoping lift for high piling; tilting load arms for carrying and hydraulic lift and tilt controls for smooth, fast operation.

HYSTER KARRY KRANE

Because of the vital need for material handling equipment by our fighting forces, deliveries now are through allocation by WPB only. But HYSTER Lift Trucks, Straddle Trucks and Karry Kranes will be available to serve post-war industry in solving material handling problems when the war is won.



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SALES & SERVICE OFFICES
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Manufacturers of TRACTOR WINCHES, DOUBLE DRUMS, CRANES AND LOGGING ARCHES, STRADDLE TRUCKS, LIFT TRUCKS, KARRY KRANES

Attractive office building and display room built with company's concrete products

New Markets

(Continued from page 80)

four days. Under normal conditions, up to 500,000 units of various sizes are kept in stock.

Deliveries of concrete block and building supplies are made with one G.M.C. and two Dodge trucks.

One of the illustrations shows the attractive office building of Graystone Tile Co. This structure, of California ranch style architecture, is constructed with 4- x 8- x 16-in. units in the walls, and the slump tile units in the pillars supporting the porch roof and in the fire-place chimney.

Joseph W. Schulze is assisted in the management of the company by his son, Fay W. Schulze.

Admixture for Winter-Resistant Concrete

IN COOPERATION with the Portland Cement Association, the Hercules Powder Co. is making tests of its admixture Vinsol resin on highways in 15 States. Test roads, on which strips of resin-treated portland cement concrete were laid side by side with untreated concrete, have been constructed in Delaware, Illinois, Indiana, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, South Carolina, Utah and Wisconsin. The Queen Elizabeth Way in Canada, from Niagara Falls to Toronto, also has sections containing resin-treated cement.

These roads show that in states where the strip of untreated concrete has deteriorated due to winter conditions, the section of resin-treated cement concrete alongside it remains unaffected.

The Ohio State Highway Department has specified that Vinsol must be incorporated into all concrete mixtures for road construction in Ohio.

Other key highways that will be built with Vinsol-treated cement include the new Industrial Highway outside Philadelphia, and the new highway leading to the Willow Run bomber plant outside Detroit.

Vinsol-treated cement has also been used extensively by the United States Corps of Engineers in the construction of military airports throughout New England, New York, Michigan and Illinois.

Concrete Bath Tubs

(Continued from page 82)

From this model a concrete mould was prepared, finished to the minutest detail to avoid all holes, air pockets and other imperfections. Into the mould is then placed the reinforcing which consists of a ¼-in. rod around the upper flange or lip of the tub and 4- x 4-in. metal mesh for the remaining form of the tub.

The concrete mix consists of one part of white cement to 2½ parts of Haydite aggregate mixed to a soupy consistency in a machine mixer for nearly 30 minutes. This prolonged mixing overcomes setting shrinkage since the concrete has passed its initial set before the cast is poured. Concrete is poured into the moulds and vibrated into place. The moulds are then placed in a steam curing chest for 24 hours.

Following this rapid controlled curing, the form is stripped with compressed air introduced through vents in the mould. This method breaks the firm and enables the cast to be removed from the mould without damage. The finished bath tubs are then placed upon wooden frames protected from too much air or heat for several days.

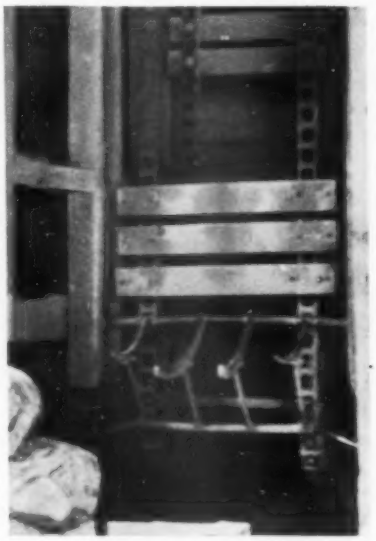
After curing the tubs are ready for finishing which is accomplished by the use of a synthetic filler, previously mentioned, and polishing with machine buffers to a high, even, glossy finish.

In addition to the manufacture of concrete bath tubs, the Olympian Cast Stone Co. is making a large number of shower stall bases of concrete for housing projects.

Diversification

(Continued from page 79)

The plant operation is very simple. Trucks deliver to an apron feeding a belt conveyor that serves a double-decked, 3- x 6-ft. Simplicity screen with three of the products falling to Blaw Knox bins. There are two bins, one with two compartments of 50 tons capacity each and one of 30 tons capacity. The oversize is being stock piled as later the company intends to put in a crusher. A Lima clam-shell is used for stockpiling. For loading at the pit a ¾-cu. yd. Lorain



Elevator for handling bagged cement to batching plant mixing floor

dragline is used, with a 5-cu. yd. load being delivered to the plant about every five minutes. The vibrating screen is driven by a Ford engine, and the belt conveyor serving it is operated with a 2-cycle Le Roi engine. The plant at present is out in the open but it is planned to enclose it in a suitable building in the near future.

Fire at Crushing Plant

VIRGINIA-CAROLINA CHEMICAL CORPORATION, Charleston, S. C., reported considerable fire damage in its grinding plant and rock shed at its Standard Fertilizer division.

Cement Production Continues Decline

BUREAU OF MINES reports that production and shipments of finished portland cement during July were respectively 11,880,000 bbl. and 12,411,000 bbl. Although these totals showed little change from figures for the preceding month, production was 29 percent and shipments 39 percent below similar data for July, 1942. Thus the long-term downtrend in industry-activity was continued through July at a more rapid rate than in the several prior months.

Total shipments of finished cement from mills during January-July, 1943, declined from the same period of 1942 in greater proportion than production owing partly to the necessary repletion of stocks during January-March. Also, since March, shipments have remained at approximately the same level as production whereas in 1942, beginning in June, shipments greatly exceeded production and stocks were reduced. Since March, 1943, stocks have been maintained near customary operating levels and at the end of July were 13 percent above those on July 31, 1942.

The following statement gives the relation of production to capacity, and is compared with the estimated capacity at the close of July, 1943, and of July, 1942:

RATIO (PERCENT) OF PRODUCTION TO CAPACITY

	July 1942	July 1943	June 1943	May 1943	Apr. 1943
The Month..	80.0	56.0	58.0	59.0	55.0
12 Months...	71.0	67.0	69.0	70.0	72.0

Make Concrete Block Revetment

JULIUS SORENSON & SONS, Racine, Wis., is building a concrete block plant at Greenville, Miss., to manufacture a special concrete block for revetments along the Mississippi river. The contract calls for 2,000,000 block. About 50 people will be employed in the block plant.

Arthur J. Sorenson reports that the company is installing two Besser Vibrapacs with the necessary mixers and skip hoists also supplied by Besser Manufacturing Co. The block are 8- x 12- x 16-in., smooth on all sides, similar to a 12-in. pier block. Harry N. Sorenson, another partner of the company, will be manager of the Greenville plant.

To Build Ready Mix Concrete Plant

ABERDEEN CONCRETE CO., Aberdeen, Md., has acquired a new site for its concrete batching plant now operated near the Pennsylvania Railroad station. Raymond R. Clark, president, has announced that a new plant will be built, including an enclosed compartment bin, batching equipment, and conveyor system.

New Pipe Factory

BLUROCK CONCRETE PRODUCTS CO., Vancouver, Wash., is building a new plant, according to Harold H. Stevens, owner and manager. The company makes concrete sewer pipe, well linings, septic tanks, and related products.

Build Ready Mix Batcher

WALT KEELER CONCRETE CONSTRUCTION CO., Wichita, Kans., has installed a large concrete batching plant at the company's present location. This concern has been very active on war construction jobs.

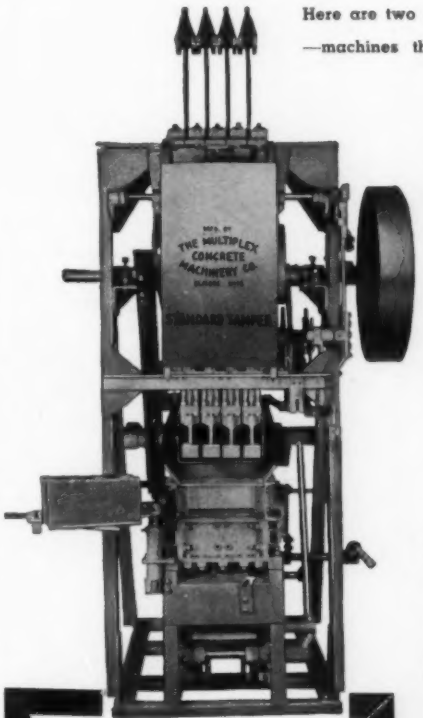
Building Floating Concrete Drydocks

HOMER M. HADLEY, regional structural engineer, Portland Cement Association, Seattle, Wash., reports that the Navy is making tests of floating concrete drydocks, having placed under contract two small 400-ton and eight 2800-ton docks. There are other developments in the use of concrete for ships which cannot be disclosed at this time.

MORE PRODUCTION
MORE PROFITS
MORE SATISFACTION

With MULTIPLEX Concrete Machinery

Here are two star performers in the Multiplex line —machines that mean better business for you.



MULTIPLEX STANDARD TAMPER

The MULTIPLEX 8-bar Standard Tamper produces from three to four 8 x 8 x 16 in. units a minute. Time-feeding while tamping and hopper agitation make better units. Makes plain and stripper, or face blocks, on one base. Strike-off hopper assures a smooth top.

The Multiplex line includes Power Tampers, Power Presses, Hand Machines, Super Tampers, Mixers, Block Cars and Racks.

Complete plant installations—parts —repairs.

MODEL E FLUE BLOCK MACHINE—Makes 16 x 16 inch blocks. Includes all necessary attachments for ventilator and stone pipe openings.

Write for the MULTIPLEX Catalog

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"ANCHOR"

Complete

EQUIPMENT AND ENGINEERING SERVICE

Equipment for all phases of manufacturing concrete cinder block and other lightweight aggregate units. Our engineering service for new plants and modernizing old ones will help you operate more economically.

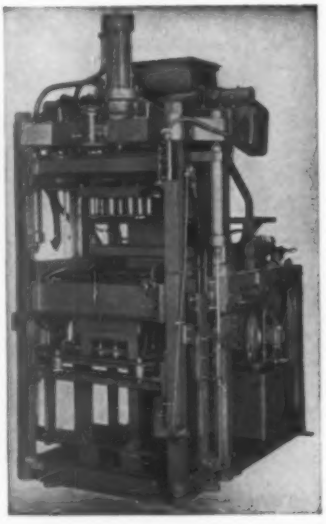
Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers, Stearns Joltcrete, Stearns mixers, pallets, Straublox Oscillating attachments, etc.

Repair parts for Anchor, Ideal, Universal, Stearns, Blystone mixers and others.

Anchor Concrete Mchy. Co.

1191 Fairview Ave., COLUMBUS 8, O.

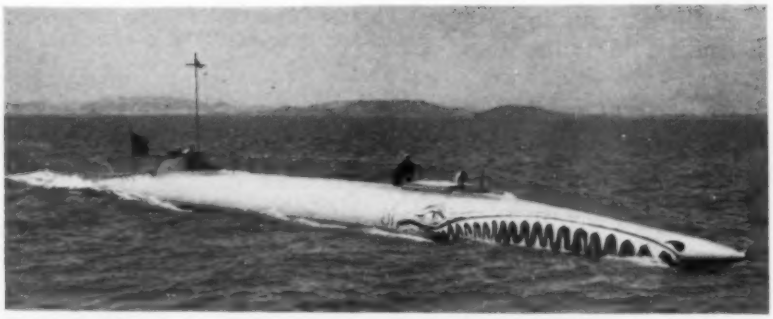
HYDRAULIC VIBRA-PRESS



A High Production Machine Making Blocks which are Demanded by the Contractor Endorsed by the Architect Desired by the Mason

The KENT MACHINE CO.

CUYAHOGA FALLS, OHIO



Above: Cargo ship model Lektron, built of concrete, on its trial run. Below: Interior showing ribbed, reinforced concrete construction

Concrete "Submarine"

OLD-TIME MARINERS probably rubbed their eyes in disbelief when they saw the Lektron plowing through the water on a test run in San Francisco harbor. As shown in the illustration, the boat is a 125-ft., 11-ton model of a 10,000-ton cargo ship. Designed by Hal B. Hayes, the model cost $80,000, and is powered by two V-8 motors. It is cigar-shaped and is built entirely of reinforced concrete. The ship looks and rides like a submarine, and it has no keel, but it is not yet designed for submerging.

Post-War Highways

JOHN U. SHROYER, secretary of the Pennsylvania Highway Commission, was one of the principal speakers at the Pennsylvania Stone Producers' Association annual meeting in the Penn-Harris Hotel, Harrisburg, Penn. His subject was "Post-War Highways".

Harold J. Mehl, area War Manpower Director, spoke on manpower problems. War Production Board regulations as they affect the stone producers industry were discussed by E. W. Bauman, chief of the nonmetallic section, Mining Division, W.P.B. A. T. Goldbeck, engineering director, National Crushed Stone Association, discussed the research work conducted by the national association.

Build Pipe Plant

WASHINGTON CULVERT AND PIPE CO., with plants in Spokane and Seattle, has leased seven acres near the water front at Pasco, Wash., to build a plant. George M. Schwarz, engineer of the firm, will manage the new plant which will employ 20 men.

Airport Access Highway

TYPICAL of some of the important access highway improvements is the widening of the Sunset Highway from Spokane, Wash., to the entrance of a big airport depot. This highway will be a four-lane road with two pavement strips 20 ft. wide with a 25-ft. safety lane in between.

Pavement Yardage

AWARDS of concrete pavement for August, 1943, have been announced by the Portland Cement Association as follows:

Square Yards Awarded During August, 1943

Roads	620,486
Streets and Alleys	508,402
Airports	3,177,785
Total	4,306,673

YOUR PLANT NEEDS

EXECUTONE Interior Communications

With an *Executone* Intercommunication System directly connecting key positions in your organization, you have every employee and executive within sound of your voice, instantly, without leaving your desk, without taking them away from their work, and without tying up your phones and causing a bottleneck at your switchboard. Hundreds of individual minutes thus saved add up to more valuable man-hours for vital production.

EXECUTONE INSTALLATIONS from 2 to 70 stations soon pay for themselves in increased production.

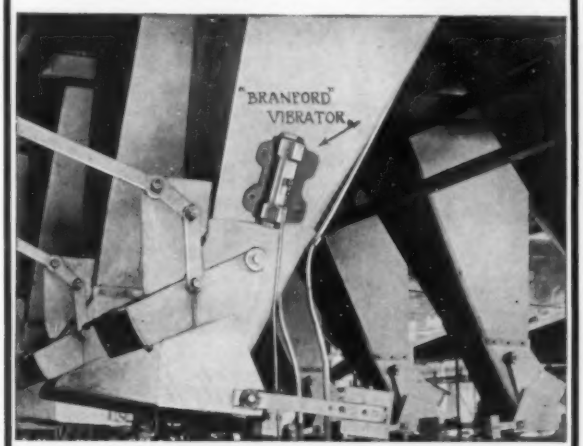
Write for Catalogue S3 and Free Survey Chart.

EXECUTONE, Inc.

415 Lexington Avenue, New York 17, N.Y.

SERVICE FACILITIES IN PRINCIPAL CITIES

"BRANFORD" PNEUMATIC VIBRATORS



If you are interested in increasing the efficiency of your material handling equipment, we suggest you write us for data on our Vibrators for use on Hoppers, Bins, Chutes, Concrete Buckets, Screening Devices or in any place where bridging over or hanging up of material occurs.
Prevents costly damage to equipment by sledging; cuts down labor costs and increases production.
We also manufacture *Vibrators* for *placing concrete*—Pipe Forms, Tanks, slabs, joists, etc.

NEW HAVEN VIBRATOR CO.

145 CHESTNUT ST. NEW HAVEN, CONN.

War Construction Still Needs Concrete Men

Expediting the war effort is still the first duty of concrete contractors and concrete products manufacturers.

Needs for war housing and war plant improvements are not yet satisfied. Facilities for preserving and storing war foods are as urgently needed as ever. Farmers still need concrete improvements such as feeding floors, paved barn yards, and sanitary milk houses, which save labor and increase farm production.

- **Concrete construction for any of these vital purposes requires minimum use of scarce materials. Transportation is saved because the bulk of concrete materials is usually available within short hauling distance of any project.**

Assistance of our concrete specialists is available to help solve problems relating to essential concrete construction now or in Pre-V-Day planning for post-war concrete projects.

PORTLAND CEMENT ASSOCIATION

Dept. A10-45, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

BUY MORE WAR BONDS

Removing Lime Scale from Truck Bodies

By R. W. MITCHELL
Tech. Dir., Magnus Chemical Co.

PROBABLY every lime kiln operator in the country who has a fleet of trucks is faced with the problem of keeping truck bodies — particularly the cabs—in a clean condition.

Lime dust, mixed together with fine stone particles, settles on the painted surfaces of the truck, where, on foggy or rainy days it reacts with the moisture to set into a dull gray deposit which is mighty close to concrete hardness. It is often so hard that a sharp instrument is required even to scratch it.

Ordinary cleaners are completely ineffective in removing this deposit. You are dealing with a substance which closely approximates the composition of boiler scale, or the heavy scale which forms in radiators in hard water areas. It simply will not respond to alkaline cleaners, soaps or emulsifiable solvent cleaners.

Any attempt to scrape it off means ruined paint and scratched or gouged metal. Probably many have tried alkaline cleaners with no result.

Dilute muriatic (hydrochloric) acid is fairly effective, since the situation calls for an acid to dissolve the scale, but though it does a reasonably satisfactory cleaning job, no one wants to take the chance of putting such an acid on metal.

Yet an acid action is nevertheless necessary for the removal of these deposits. The answer lies in the use of a suitably compounded acid cleaner, in which the acid constituents are strong enough to attack the scale without affecting paints and without danger of burns to operatives or attack on clothing and in which suitable inhibiting agents eliminate any danger of corrosion to the metal if poor rinsing and seepage allow any concentration of the cleaner to remain in contact with the body for long periods.

This solution is used in quite dilute form. One part of the cleaner with twelve parts water makes a very satisfactory mixture which goes right to work on the scale. It is either painted on, or sprinkled from a can with considerably finer holes than the common type, to avoid waste in application.

As soon as the solution hits the scale, dissolving action starts, with considerable fizzing. The mild acid in the cleaner is consumed very speedily, so that continued application over a small area at a time is necessary until no more reaction or fizzing takes place as fresh solution is painted or sprinkled on. Then the treatment is repeated over another small area until the whole surface has been cleaned. After the scale has been dissolved, the painted surface is exposed, but usually there is still a residual film on the surfaces which probably consists of trapped dirt, soot, road film and other solid dirt, which is easily wiped off with a sponge. There is no attack whatsoever on the paint proper and whatever lustre it may have had when first subjected to these deposits is unaffected.

Another case in point is the cleaning of truck motors and chassis, for the purpose of inspection, maintenance works or repairs. Here the grease and oil tend to prevent adherence of the dusts that cause the scale, though of course the scale itself does form inside the hood as well as outside. But if you can remove the greasy, oily dirt, you also remove the scale. This is easy to do with a modern emulsifiable solvent cleaner, which is mixed with kerosene, usually one part concentrate to eight parts kerosene and sprayed on the motor surfaces. This is allowed to soak in for a few minutes, and

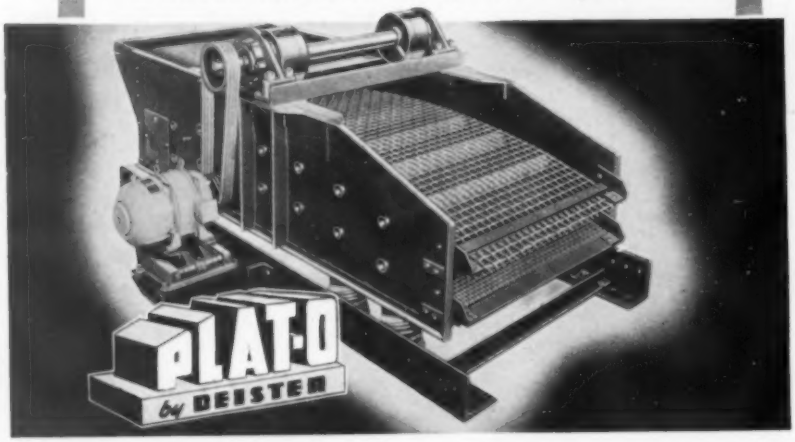
Removes Extreme Sizes
Faster

Invariably, one of the first features of PLAT-O Vibrating Screens to impress operators is their speed in getting rid of extreme oversize and undersize. Due to exclusive, ingenious screening design and action, extreme fines drop through as soon as they hit the screen and the big stuff is bounced rapidly off the discharge end.

Naturally, this makes more of the screening area available for the near mesh sizes and provides a "thin bed" two-thirds of the way . . . thus increasing screen efficiency . . . overall production capacity . . . overall profits.

Here is just one illustration of how PLAT-O works to give you greater operating efficiency . . . one illustration of how Deister's long experience pays dividends to the operator. But there's much more to the story than this. Why not get ALL the facts by writing today for your copy of "Better Sizing—Cheaper"?

DEISTER MACHINE CO., Fort Wayne, Ind.



then the whole surface being cleaned is flushed off with water.

In the use of the mildly acid and inhibited type of cleaner described above, no special precautions are necessary.

Pozzolan Cements

THE USE OF DOMESTIC portland-pozzolan cements has increased markedly during the past decade. Because of a scarcity of data, an investigation of some properties of these cements was started about 9 years ago by G. L. Kalousek and C. H. Jumper. As explained in an article on this work that will be published in the *Journal of the American Concrete Institute*, a group of 10 commercial portland-pozzolan cements, 2 Santorin Earth blends, together with 2 standard portland and 1 natural cements were used. The cements were tested for all or some of the following properties: Tensile and compressive strengths; resistances to cycles of freezing and thawing, and of freezing, thawing, and drying (at 65 deg. C); linear changes caused by periodic alternations of the specimens between damp closet and laboratory; resistances to solutions of sodium and magnesium sulfates; linear changes during autoclaving; and heats of hydration. Chemical analyses were also made.

The strengths of the commercial portland-pozzolan cements for the most part approximated and in some instances exceeded those required by specifications for portland cements. The two laboratory blends and the natural cements gave low strengths. The linear changes of the concrete specimens, stored alternately in the damp closet and the laboratory, were nearly the same for all cements with the exception of one portland-pozzolan cement, which showed a small but continuous growth.

The portland-pozzolan cements showed a better resistance to cycles of freezing, thawing, and drying (at 65 deg.) than did the portland cements. However, no definite trends were manifested in the freezing and thawing tests. The commercial portland-pozzolan cements showed better resistance to the action of a 10-percent solution of Na_2SO_4 than the portland cements at 4 weeks.

The linear changes of neat bars caused by autoclaving were small for four of the five portland-pozzolan cements tested; the fifth showed an intermediate expansion. The heats of hydration determined for five portland-pozzolan cements ranged from 52 to 79 cal./g. (average of 62) at 7 days and from 70 to 96 cal./g. (average of 79) at 28 days.

Getting the Last Ounce of Service Out of Roll Crusher Shells . . . .

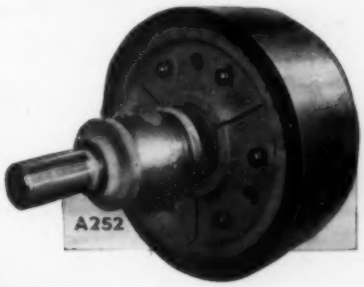
To show how long austenitic manganese steel actually lasts in crushing copper ore, we give you picture A-255 of an unused roll crusher shell, 16″ x 32″ x 3½″, weight 1,500 pounds, between two worn shells, cast from the same pattern, weighing 182 and 255 pounds each.

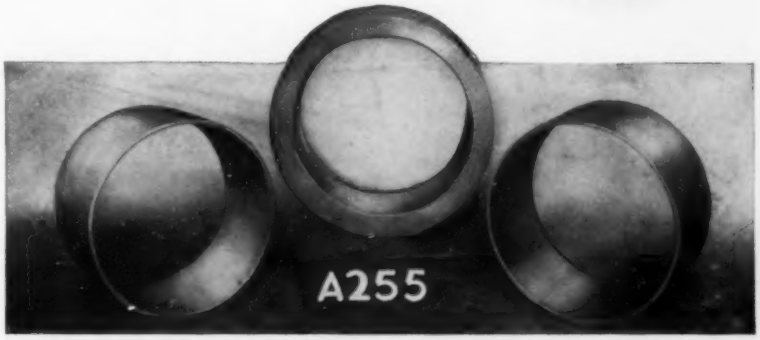
This comparison illustrates perfectly the reason for the unmatched economy of manganese steel crusher, grinding mill and pulverizer parts. The "toughest steel known" not only resists abrasive wear in a manner unsurpassed in this service, but also—by reason of its toughness—withstands breakage stresses to a high degree. These shells remained in service until well over 80% of the metal had worn away, a performance that poses the query: *"What good is an extremely hard metal if it will not withstand the shocks inseparable from crushing rock and ore?"*

View A-252 shows a mandrel fitted with an Amsco manganese steel tire, used in a double roll crusher operated with unusual success in crushing one of the hardest and most abrasive rocks in the world, known as chert or flint. This rock breaks into flakes with knifelike edges. In the "Joplin district," the valuable minerals are usually found embedded in chert, which must be broken up to release the ores. In this service, a crusher manufacturer tells us, ordinary iron or steel roll shells last only a few days, while those made of manganese steel last for many months.

For all stages of crushing—primary, secondary and fine — no other metal has been identified for jaws, rolls, mantles and concaves that is consistently as long-wearing and economical as austenitic manganese steel.

Ask for your copy of Bulletin 743-M on Manganese Steel for Mining and Quarrying Equipment, available soon.





Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois
AMERICAN Brake Shoe COMPANY
FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

Maintenance

(Continued from page 60)

that recommended for open gearings.

INSPECTION—Next to proper lubrication in order of importance in maintenance of properly installed equipment is periodic inspection. The best insurance of proper inspection is to establish a regular routine for the lubrication of the equipment by some one capable of observing it from the standpoint of what is going to happen to it "tomorrow" rather than from what has already occurred. All wire rope connections, bolts, and important fastenings; wrapping of cables on drums; interferences with running ropes; and avoidable abrasion of any kind may be observed and eliminated before the damage is done. This is preventative maintenance.

The principal causes of avoidable wear and tear on running cables are:

1. Failure to wrap smoothly on drums. Point of lead must be on projected center lines of the drums and the lead distance must be at least 20 times the drum width.

2. Misalignment of sheaves. Sheave should be free to follow the plane of the ropes. Use fairlead blocks in pairs for fixed horizontal turns.

3. Too small diameters of sheaves or drums. Reduce bending stress in rope by using larger diameters.

4. Overloading. Use instantaneous release overload protection on larger motors.

5. Pulling cables through material. Relocate blocks and sheaves to avoid live loads against material.

6. Corrosion of idle ropes. Keep standing cables, and operating cables which are inactive protected by a viscous lubricating compound.

REPAIRS—Anticipate repairs and make them on your own schedule rather than on a break-down basis—whenever possible.

Frequently life of operating cables can be substantially increased by reversing ends when wear occurs on the most exposed portion. Increase or decrease lengths of cables so that overwinding at end of drum does not occur at the time when cables have peak loads or reverse travel.

Teeth, wearing blades, runners, and similar exposed parts of buckets are designed to protect body structures, and should be kept in reasonably good condition even when not needed for digging the material. Utilize field welding, hard-surfacing, and similar measures for building out and reconditioning discarded spares.

ADJUSTMENT — The most frequent cause of avoidable wear at scraper hoists is failure to keep the brake operating mechanism properly adjusted. The brake release mechanism must not release the brake until *after* the clutch has taken hold. Similarly, the clutch release mechanism must not release the clutch until *after* the brake has taken hold. This is all-important in interconnected brake-clutch mechanisms on scraper hoists, whether manually, hydraulically, or electrically operated.

Save your cables, even at the expense of a little brake lining. Keep the brake mechanism properly adjusted.

Keep bearings taken up, well lubricated, and clean.

In succeeding issues various other types of equipment will be discussed. Why not save this article for future reference?—The Editors.

Develop Talc Deposit

DEWATERING of the Pittsburgh Landing Co. property in the Mount Bullion field near Mariposa, Calif., is proceeding, and a plant is under construction for the treatment of extensive talc deposits. Pittsburgh Landing formerly produced considerable gold besides talc and other minerals.

SAND WASHING
TO EXACTING SPECIFICATIONS

Get Big Tonnage at Low Power Cost

with AKINS CLASSIFIERS

For many years AKINS Classifiers have been identified with the dressing of practically all metallic ores and have found many applications in other industries. More recently AKINS Classifiers have been successfully adapted to washing sands —particularly sands specified to close separation, as for glass making. . . . These machines do not require unloading to start after shutdown—a big advantage for plants not operating 24 hours a day. . . . In writing for Bulletin 24-HA, please state your washing problem.

A 54" High Weir Type AKINS Classifier specially equipped with wash boxes and lifter blades for washing sand.

Lowden Dryers; Skinner Multiple Hearth Roasters; Ball, Rod & Tube Mills; Smelting Equipment; Crushers and Rolls.

COLORADO IRON WORKS CO.

Main Office, DENVER (2), COLORADO, U. S. A.

Canadian Locomotive Co., Ltd., Kingston, Ont., Can. Clyde Engineering Co., Ltd., Granville, N.S.W. Head, Wrightson & Co., (So. Africa) Ltd., Johannesburg.
Vancouver Iron Works, Ltd., Vancouver, B.C., Can. Head, Wrightson & Co., Stockton on Tees, Eng.

Water Supply and Treatment

THE PRINTING of the fifth edition of the National Lime Association booklet, "Water Supply and Treatment," has been completed and copies are being mailed to fill the hundreds of requests that accumulated since the supply of the previous edition became exhausted.

The new booklet contains many revisions and considerable new text matter. Out-of-date pictures have been removed and current ones substituted. Several pages of charts and diagrams in color have been added which enhance the value of the text.

The following record of the printing of past editions is of interest:

Edition	Year Published	Pages of Text	No. of Copies
First	1934	143	10,000
Second	1936	145	5,000
Third	1938	146	5,000
Fourth	1941	163	5,000
Fifth	1943	206	7,500

The increased cost of the present booklet has made it advisable to discontinue the free distribution of quantity lots to colleges, universities, and similar institutions for classroom use. It was found that those who really want and need the information are willing to pay a reasonable price for the booklet.

A great many requests for "Water Supply and Treatment" have been received by the Association from chemists, engineers, and other Army personnel responsible for the successful operation of water treatment plants.

Sand-Lime Brick Production and Shipments

FOUR active sand-lime block and brick plants reported for August and five for July, statistics for which were published in September, 1943.

AVERAGE PRICE FOR AUGUST

	Plant Price	Delivered Price
Detroit, Mich	....	$16.00
Saginaw, Mich.	$13.00	....
Grand Rapids, Mich.	....	15.00
Seattle, Wash.	16.50	18.50

STATISTICS FOR JULY AND AUGUST

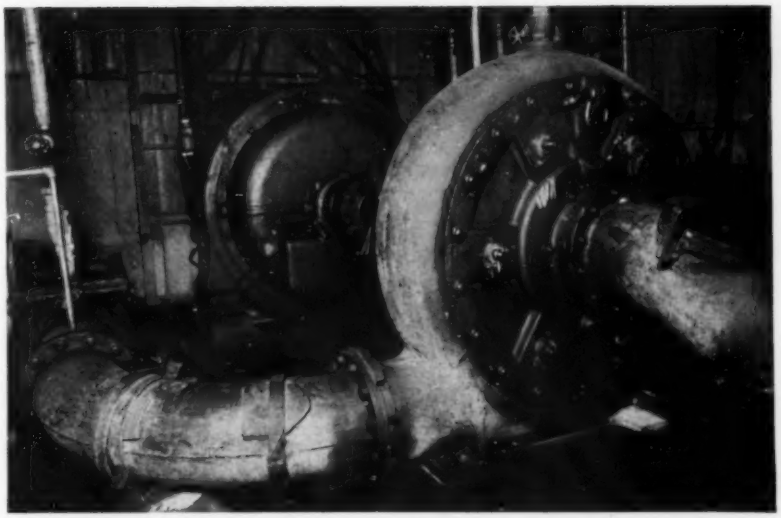
	*July	**August
Production	991,340	1,121,500
Shipments (rail)	405,000	.....
Shipments (truck)	509,443	1,129,316
Stocks on Hand	340,225	90,000
Unfilled Orders	1,050,000	965,000

*Five plants reporting: incomplete, two not reporting unfilled orders.

**Four plants reporting: incomplete, two not reporting stocks on hand and two not reporting unfilled orders.

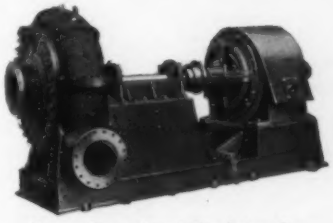
Bids on Concrete Pipe

BUREAU OF RECLAMATION has asked for bids on 14,000 ft. of standard concrete pipe, ranging from 6- to 18-in., for the Roza division of the Yakima, Washington, project.

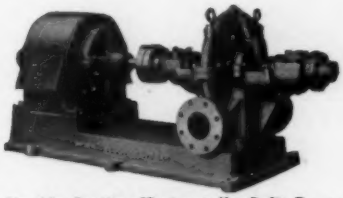


CONVINCING THE SKEPTICS . . .

The favorite job of the Morris Engineers is to prove how often the "*impossible*" is possible in pumping operations. Many are the instances in which Morris Pumps are developing "*impossible*" efficiencies, handling "*impossible*" mixtures operating under "*impossible*" conditions, and lasting "*impossibly*" long. If you have a difficult problem involving the handling of liquids or materials in suspension, don't give it up, give it to the Morris engineers. They'll give you the answer.



Heavy-Duty Lined Dredging Pump



Double Suction Horizontally Split Pump for Clear Liquids

MORRIS MACHINE WORKS Baldwinsville, N. Y.

MORRIS ESTABLISHED 1864

EXPORT OFFICE 50 CHURCH ST. New York 17, N. Y.

CENTRIFUGAL PUMPS

Washington Doings and Regulations

Soft Coal Prices

O.P.A. AMENDMENT No. 59 to Regulation No. 120; No. 11 to Regulation No. 122; No. 16 to Regulation No. 189:

To provide for maintenance of prices after the expiration of the Guffey Coal Act, August 22, these amendments preserve the designations contained in the minimum price schedules of the coal division with respect to coal classifications, sizes, groupings, mine index numbers, producing districts and subdistricts and all other trade appellations. This means that producers, distributors and dealers will continue to observe ceilings on their coals as at present.

However, where sales are now being made at minimum prices established under the Guffey Coal Act, because such minima exceeds O.P.A.'s maxima for the same coal, this practice may be continued only until October 23. During the intervening period producers may petition O.P.A. for a higher ceiling price, if they will suffer hardship in being forced to revert to the lower maximum prices established by O.P.A.

Essential Activities

W.M.C. 3336: War Man Power Commission revised its list of essential activities (revisions and additions in capital letters). Those under which the rock products industries may qualify are:

8. Construction: Highway and street construction; marine construction; construction of approved industrial plants, houses, hospitals, and military projects; repair of such facilities; and services necessary to complete such construction.

[This would evidently include servicing the job with cement and aggregates, or ready-mixed concrete. THE EDITOR.]

11. Nonmetallic Mining and Processing and Quarrying: The mining, processing or quarrying of salt, GYPSUM, phosphate rock, sulphur, potash, asbestos, graphite pyrites, graphite, borates and other salines, fluorspar, mica, talc, abrasive sands, calcite, and similar essential products.

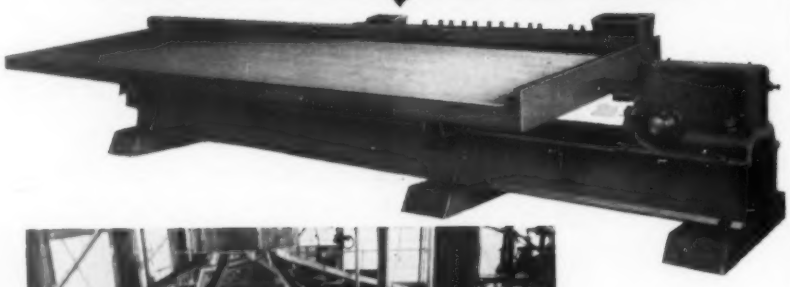
[Sand, gravel, crushed stone and slag are not mentioned but presumably are included in "similar essential products."—THE EDITOR.]

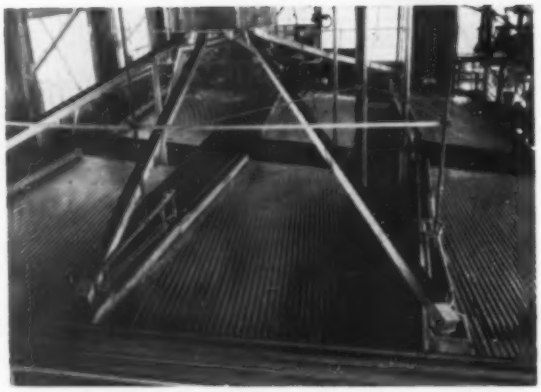
22. Production of Stone, Clay and Glass Products: Scientific and industrial glass products; sand-lime, firebrick and other heat-resisting clay products; CHEMICAL lime; abrasive wheels, stones, paper, cloth and related products; asbestos products including steam and other packing, pipe and boiler covering; crucibles and retorts; GYPSUM BOARD; MINERAL WOOL (FOR INSULATION); porcelain electrical supplies; as well as parts of military apparatus.

Construction Equipment

W.P.B. AMENDMENT to Limitation Order L-196, Part 3058.1: (e) *Registration of change of status of used construction equipment.* Within one week after any used construction equipment (1) is moved from the project on which it is being used; (2) becomes idle after completing its work on that project even if not moved from the project; (3) not being on a project is put into use on a project, or (4) has had its ownership changed, any person owning such equipment shall register such change of status by completing, signing and returning by mail W.P.B. Form 1333 or such other form as may be in the future specified by

WILFLEY TABLES
for Closer Separation in
PHOSPHATE WASHING





Left: Six of twelve No. 6 Wilfley Tables used in a modern Florida Phosphate Fertilizer Plant.

For food production, either animal or vegetable, phosphorus in the soil is indispensible. Modern American plants are supplying millions of tons of soluble phosphorus for fertilizer to meet that need. The above photo shows half of the table section in Phosphate Mining Co.'s new plant at Bartow, Fla. Inquiries on the use of Wilfley Tables in phosphorus washing will be answered promptly.

Marcy Ball, Rod & Tube Mills; Massco-McCarthy Hot Millers; Rock Bit Grinders; Pinch Valves; Belt Feeders; LABORATORY EQUIPMENT.

DENVER
SALT LAKE CITY
EL PASO
NEW YORK CITY

The Mine & Smelter Supply Co.

CANADIAN VICKERS, LTD.
MONTREAL
W. R. JUDSON
SANTIAGO, LIMA

the W.P.B. to Used Construction Equipment Regional Specialist in the W.P.B. Regional Office in the region in which such equipment is located.

Pulverized Mica Price

O.P.A. AMENDMENT 3 TO M.P.R. 347: Sec. 2a. Maximum prices for sales or deliveries of pipe line enamel mica to the Barrett Division of the Allied Chemical and Dye Corporation. (a) Any person may sell or deliver to the Barrett Division of the Allied Chemical and Dye Corporation, Chicago, Illinois, and Fairfield, Alabama, pipe line enamel mica meeting the following specifications:

Screen Test:

Through 35-mesh .....99.8% min.
Through 60-mesh ..... 90% min.
Through 100-mesh .... 60% min.
Loss on ignition..... 6% max.
Moisture .....0.20% max.
Must be free of carbonates.

at a delivered price not in excess of $30.00 per ton plus (1) railroad freight on the shipment from the seller's shipping point to the consumer's plant, or (2) railroad freight on such shipment from Spruce Pine, N. C. to the consumer's plant, whichever is higher.

(b) The maximum price f. o. b. the seller's shipping point shall be his maximum delivered price as calculated under paragraph (a) minus freight from the seller's shipping point to the consumer's plant.

This amendment shall become effective September 1, 1943.

Termination of Government Contracts

The War Department has issued Title 10, Chapter VIII, Procurement and Disposal of Equipment and Supplies, Procurement Regulation 15, Part 88—Termination of Contracts, a document of 42 pages. It gives the regulations covering cancellation of contracts including construction contracts, at the convenience of the government. All who have contracts with the government or subcontracts for materials with the prime contractor should be familiar with these regulations.

Manpower Utilization

SENATOR VANDENBERG (Michigan) pried loose the Bernard Baruch report on manpower shortages from the office of James F. Byrnes, war mobilization director, where its publication had been suppressed.

The publication of the text disclosed that Mr. Baruch was sharply critical of what he called the failure of government agencies to work as a team to solve manpower problems.

"The time must end," he said, "when agencies spend their energies battling to build up empires of power. It is time to reassert the fact that there is one federal government —speaking with one voice—not a 'centimouth'."

Mr. Baruch complained that there "are entirely too many agencies 'studying' problems of manpower, housing, transportation, labor turnover and the care of children of working mothers.

"No more 'studies' are needed," he said. "What must be done is known. Action alone remains necessary."

The report recommended eight steps to maintain adequate manpower in essential war production:

(1) Reduce the alarming turnover of workers.

(2) Enlist every possible source of new labor.

(3) Curtail less essential activities.

(4) Step up efficiency of labor already in plants.

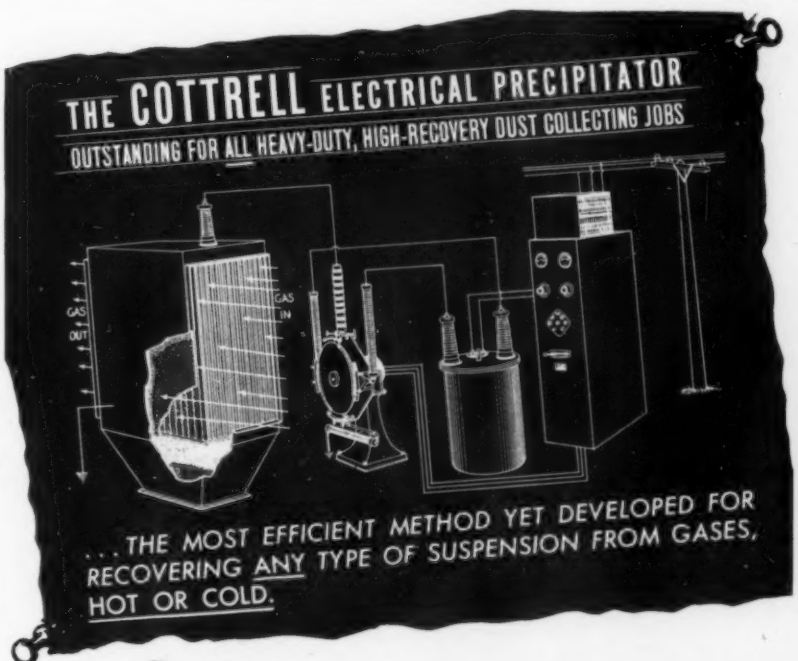
(5) Minimize the disruptive effects of the draft.

(6) Combat the hoarding or waste of labor.

(7) Improve management.

(8) Reduce demands on labor supply.

W.M.C.: The West Coast manpower program is based upon an earlier


THE COTTRELL ELECTRICAL PRECIPITATOR
OUTSTANDING FOR ALL HEAVY-DUTY, HIGH-RECOVERY DUST COLLECTING JOBS
GAS OUT
GAS IN
...THE MOST EFFICIENT METHOD YET DEVELOPED FOR RECOVERING ANY TYPE OF SUSPENSION FROM GASES, HOT OR COLD.

REGARDLESS of particle size or nature of the suspension—whether dust, fog, fume, mist or smoke—the COTTRELL can be guaranteed to collect 99% or over of ALL particles entering the system. ▶ It has no filters, no screens—nothing to require frequent repair, replacement or maintenance. ▶ It handles gases at *any* temperature to 1200° F. and higher . . . in *any* capacity, even MILLIONS of cubic feet per minute . . . with lower draft losses than *any* other type of recovery equipment. ▶ And operating costs are extremely low, averaging only a fraction of a k.w.h. per 100,000 cubic feet of gas cleaned!

Whether for purification of gases, collection of "values" or nuisance abatement, a COTTRELL installation generally pays for itself within a few months—always within a a few years. Let our engineers assist you!

SEND FOR BULLETIN!

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

MAIN OFFICES: 1016 W. NINTH ST., LOS ANGELES, CALIF. • CHRYSLER BLDG., NEW YORK
140 S. DEARBORN STREET, CHICAGO • HOBART BUILDING, SAN FRANCISCO, CALIFORNIA
PRECIPITATION COMPANY OF CANADA, LTD. • DOMINION SQUARE BLDG., MONTREAL

plan developed for the Buffalo, N. Y., area. However, the two plans are not identical.

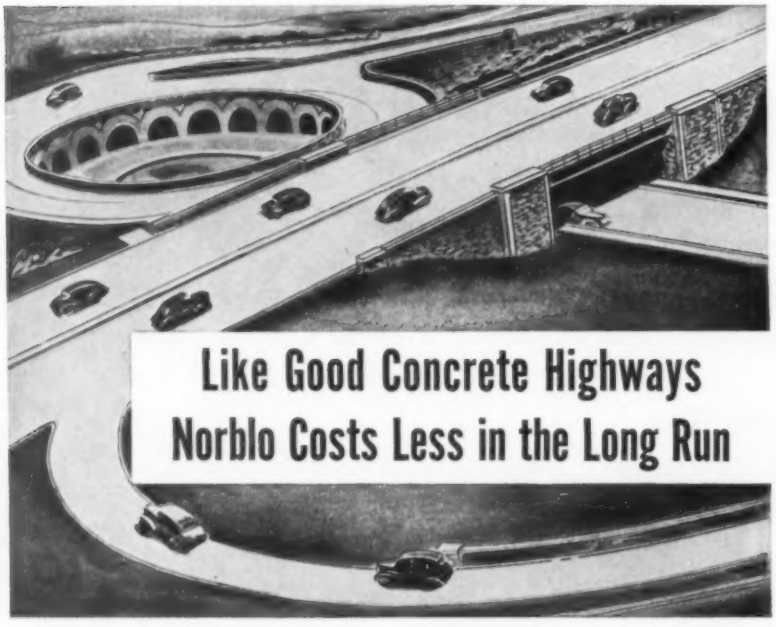
An official comparison prepared at War Manpower Commission headquarters shows the following differences:

WEST COAST

1. All workers hired only upon referral by or in accordance with arrangements with United States Employment service.
2. Total manpower program designed in Washington and applied in the field.
3. Program covers an entire region.
4. Manpower priorities committee makes recommendations to War Manpower Commission area directors.
5. Regional representatives of War Production Board and procurement agencies act in accordance with instructions from headquarters offices in relation to the manpower program.
6. Determination of production urgency clearly a function of the War Production Board, and separated from determination of manpower priorities.
7. Manpower priorities include determination of employment ceilings for individual establishments at above or below existing levels.
8. Basic standards for determining order of referral and circumstances warranting refusal of referral set nationally.

BUFFALO

1. Only male workers hired upon referral by or in accordance with United States Employment Service.
2. Manpower program developed in Buffalo lacks many elements of West Coast program.
3. Program covers only vicinity of Buffalo.
4. Manpower priorities committee makes decisions binding on War Manpower Commission area director.
5. Regional representative of War Production Board and procurement agencies acted without clear central direction in response to request of regional director, War Manpower Commission.
6. Responsibility for determination of production urgency not clearly fixed, and not clearly separated from determination of manpower priorities.
7. No provision for determination of employment ceilings.
8. Such standards developed locally, informally and out of day-to-day experience.



Like Good Concrete Highways
Norblo Costs Less in the Long Run

● Without the 300,000 miles of concrete highways America could not have built thirty million automobiles. In turn the concrete highway has been a major factor in the growth of the $200,000,000 cement industry and as mills have grown in size and efficiency, Norblo Dust Collection equipment has kept in step.

The industry has consistently advocated good highway construction as lowest in ultimate cost. Norblo Dust Collection equipment is solidly based on this principle. In the long run, the saving in operating cost and maintenance is always more than any apparent but fallacious saving that can be made by selecting the lowest bid.

Norblo equipment is always fully engineered and backed up by a guarantee of performance.

Norblo
DUST COLLECTION
THE NORTHERN BLOWER COMPANY
6409 BARBERTON AVENUE • CLEVELAND, OHIO

Turn in Scrap

W.P.B.—4237: The new "Victory Scrap Bank" drive which started September 15 has the full coöperation of the steel companies and the scrap dealers throughout the entire country, according to assurances made by representatives of both industries.

"The need for more iron and steel scrap is indicated in the production comparison of 1943 against 1942," War Production Board Chairman Nelson declared. "Increase in the production of all munitions, all navy tonnage and all merchant shipping is just double. Add to that the fact that shipments of iron ore are off from last year by more than 8,000,000 tons in the Great Lakes area due to the thirty-one days' delay in the opening of navigation this spring. An early closing or a late opening of the Lakes' navigation would further curtail the shipment of iron ore. Accordingly many additional tons of iron and steel scrap may be required to maintain ingot steel capacity."

Prices of Cement-Asbestos Products

O.P.A. HAS ISSUED M.P.R. 466 to replace M.P.R. 188 for pricing cement-asbestos building products, including roofing shingles, siding, flat sheets, sheathing, lumber, wall-board, corrugated sheets, and accessories. The regulation establishes certain trade practices as well as fixes maximum prices.

The basing point price system is established by definitions rather novel so ar as these rock products industries are concerned.

Sec. 4.3, paragraph (b) provides for "Shipments to destinations within listed equalization points or free delivery zones." . . . No charge for transportation may be added to the maximum prices set forth in this regulation on shipments made to equalization points or free delivery zones specified . . .

Paragraph (c) provides for "Shipments to destinations not within any equalization point or free delivery zone." . . . The charge permitted under this regulation shall be computed to the weight of the shipment as determined from the manufacturers' published price list and the freight rate, by the mode of transportation actually used, from the governing equalization point to the destination. The "governing equalization point" is the equalization point listed . . . the use of which results in the lowest delivered price at destination. In the case of truck shipments . . . the transportation charge shall be computed on the basis of the carload rail freight rate, unless the actual cost of trucking exceeds such freight rate, in which event the actual cost of trucking may be used as the basis of computation. In no event, however, shall such transportation charge exceed the less-than-carload rail freight charge.

The equalization points listed are the producing or manufacturing points: Ambler, Penn.; Bound Brook, N. J.; Lockland, Ohio; Manville, N. J.; Nashua, N. H.; St. Louis, Mo.; Waukegan, Ill.

Cement Basing Point Price Case

FEDERAL TRADE COMMISSION: Eight new petitions for review have been docketed as follows: Marquette Cement Manufacturing Co., Chicago; Calaveras Cement Co., San Francisco, and others; Huron Portland Cement Co., Detroit; Superior Portland Cement Co., Seattle; Northwestern Portland Cement Co., Seattle. The petitions were filed with the Seventh Circuit (Chicago) Court. These petitions are in addition and similar to those previously filed by The Cement Institute, New York and Chicago, the Aetna Portland Cement Co., and 58 other petitioners during July of this year in the cement basing-point case "in which the Commission found a nation-wide combination to restrain competition in the price of cement through the agreed use of a multiple basing-point delivered-price system."

Prices of Gypsum Wall Board

O.P.A. Amendment 13 to Order A-1 under paragraph 1499.159b of M.P.R. 188:

(13) *Modification of maximum prices for gypsum wall board, lath and sheathing* — (i) *Manufacturers' sales.* Manufacturers' sales of gypsum wall board, lath and sheathing may be made at prices not exceeding the maximum prices specified below when the following conditions have been met:

(a) The sale is made f.o.b. at a mill located within the shipping-point originating territory set forth below;

(b) The sale must be made to the War Department, the Navy Department, the Maritime Commission, or the Federal Public Housing Authority or any lumber or building material dealer holding a War Production Board priority rating of AA-3 or higher for the purchase of gypsum board products;

(c) The gypsum wall board, lath or sheathing must be for use on a "government project"; and

(d) The gypsum wall board, lath and sheathing must be destined for use in California, Arizona, Oregon and Washington.

Shipping point origin.—Indiana, Iowa, Michigan, Oklahoma, Texas, Ohio:

	Per sq. ft.
Gypsum wall board ¼ in.....	$20
Gypsum wall board ⅜ in.....	23
Gypsum wall board ½ in.....	25
Gypsum lath	13
Gypsum sheathing ½ in.....	20

(ii) *Dealers' sales.* Any lumber or building material dealer holding a War Production Board priority rating of AA-3 or higher for the purchase of gypsum board products who purchases gypsum wall board, lath or sheathing for use on a "government project" within the States of California, Arizona, Oregon and Washington from a manufacturer located at any of the shipping point origins specified above may add to his cost, at such shipping point, the actual cost of transportation from such shipping point to destination

WHERE 10 DAYS HAD BEEN TOPS...

these Spouts lasted 30!

THAT IS because these pulverizing mill discharge spouts have a hard-facing of Coast Metals. This protecting overlay is exceptionally resistant to the severe abrasive action of the hot clinker mixture that formerly wore out ordinary spouts in less than 10 days' service!

Easily applied by the electric welding arc or the oxy-acetylene torch to any ferrous metal including manganese steel, cast iron and chilled iron, Coast Metals hard-facing is today's wartime answer to making parts employed in tough service last longer. By keeping equipment on the job without unnecessary shutdowns for repair or replacement, it steps up production and improves plant operating efficiency.

Tell us *your* particular wear-resistance problems. Our engineers can help you.

COAST METALS, INC.
Plant and General Offices: Canton, Ohio
Executive Offices: New York, N.Y.

COAST METALS
hard-facing weld rods

YOUR EQUIPMENT'S LIFE PRESERVER AGAINST WEAR

Washington Doings

(Continued from page 95)

plus the same dollar mark-up as he would add on a shipment originating at a mill located within the State of California for a comparable sale.

(iii) Every manufacturer and every lumber or building material dealer making sales subject to this subparagraph (13) shall submit on or before the first day of each month after the effective date of this amendment to the Office of Price Administration, Building Materials Branch, Washington, D. C., a monthly report showing:

The name and address of each purchaser.
Point of origin of shipment.
Kind, quantity and thickness sold.
The name and location of job.

(iv) The term "government project" used in this subparagraph (13) shall mean a project constructed pursuant to a contract entered into with any of the following government agencies or any subcontract thereunder: The War and Navy Departments, the Maritime Commission, or the Federal Public Housing Authority.

(v) This subparagraph (13) may be revoked at any time.

This amendment shall become effective September 18, 1943, and shall terminate January 1, 1944, unless otherwise extended by amendment.

O.P.A. REGION VIII Order G-48, under 18(c) amendment 1: (a) The adjusted maximum prices at which any person other than a manufacturer may sell gypsum wallboard, lath or sheathing purchased from a manufacturer located outside of Region VIII, to contractors, for use in the performance of building contracts with Federal Public Housing, shall be the seller's maximum price for the particular commodity, plus any increase in the net landed cost thereof by reason of the cost of transporting the said commodity from a point outside of Region VIII.

Asphalt Ban Lifted

PETROLEUM ADMINISTRATOR FOR WAR, Ralph K. Davies, said, September 16: "During the past year there has been a decrease in military demands for asphalt and tar products due to the completion of major paving projects, so that now the supply and demand have approached a balance and there no longer is an overall shortage of these petroleum products. For that reason recommendation No. 45 was revoked.

"However, the provisions on the use of road oil were continued (under Directive 72) since this product is used to make residual heating oil, which is required for manufacturing and other essential purposes."

O.P.A., Amendment 3 to Order A-2, M.P.R. 188:

Mineral Wool Prices

(4) *Mineral wool insulation.* The following adjustment provisions, subdivisions (i) and (ii), permit the granting of relief to manufacturers of mineral wool insulation, including building and industrial products manufactured from mineral wool, who are unable to maintain or expand their production under their existing maximum price whenever, under (i), there is a general shortage in the essential supply of the commodity, or, under (ii), the loss of the seller's production would result in higher prices to consumers. The extent of relief to be granted under each provision is set forth therein.

(i) Whenever it appears that a shortage exists or threatens to exist in the essential supply of mineral wool insulation, and that a manufacturer of such commodity is unable to maintain or expand his production at his maximum price or prices, the Office of Price Administration may, either on application for adjustment

(Continued on page 98)

LEADING
The Production Parade!

When assignments are **tough** . . . when schedules **must** be met, watch PLYMOUTH LOCOMOTIVES buckle down and go to work —production unlimited! Wartime's super schedules have proved that Plymouth Locomotives can "take it" . . . can meet gruelling production demands day after day without a "let-up." Lasting for the duration will be no hardship for Plymouth.

Plymouth efficiency, power, speed, versatility and low cost operation assures a profitable production program. Investigate gasoline or diesel powered Plymouth Locomotives for your tough track haulage problems. Available in accordance with the war production planning of our government. Write for complete details today.

BUY U. S. WAR BONDS

PLYMOUTH GASOLINE and DIESEL LOCOMOTIVES
PLYMOUTH LOCOMOTIVE WORKS
Division of The Fate-Root-Heath Co. PLYMOUTH, OHIO, U. S. A.

INCLUDE LIMA IN YOUR PLANS FOR THE FUTURE

This war has brought about a keener appreciation of the fine qualities found in LIMA shovels, draglines and cranes. For years LIMA has been first choice among leading contractors doing a fine job in the non-metallic industry, but not until the pressure of war was applied did users realize fully how much LIMA'S modern features meant in the execution of a job that had to be finished in double-quick time. Today practically every LIMA is being assigned to the armed forces. But tomorrow, LIMA will be manufacturing a better and more efficient product than ever for the user who is planning for the future. While you are awaiting for the opportunity to buy a new excavator, wouldn't it be a good time to learn about LIMA? Descriptive bulletins available on types and sizes listed below.

LIMA LOCOMOTIVE WORKS,
INCORPORATED
Shovel and Crane Division
LIMA, OHIO, U. S. A.

PRODUCTION LIKE THIS...
Meets Schedules and Lowers Costs!

5000 TONS PER DAY ON A 7 MONTHS' CONTINUOUS RUN!

Every experienced operator knows that to produce 5000 tons of aggregate every 24 hours—and do it consistently, week after week, month after month—a plant must be perfectly balanced, ruggedly built,—and trouble-free. DIAMOND Portable Plants are constantly turning in high-production, non-stop records like this, and have for years. There are mighty good reasons why they do!

There are NO BOTTLENECKS in a DIAMOND Plant

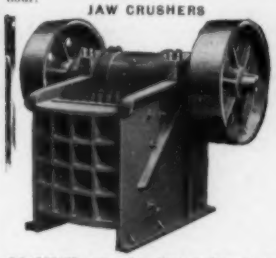
EVERY Unit—jaw crusher, roll crusher, vibrating screen, conveyor—is a PROVEN Unit. The exclusive DIAMOND "ROTOR-LIFT" assures maximum production of each unit and for the plant as a whole. For low-cost, high-output performance that meets or *beats* schedules—investigate DIAMOND. Made in many sizes and types. Ask for new bulletin D-43-G.

DIAMOND IRON WORKS, INC.
ESTABLISHED 1880
AND THE MAHR MANUFACTURING CO. DIVISION
1801 SECOND STREET N., MINNEAPOLIS 11, MINN.

Here Are the Facts:

A DIAMOND No. 95 Plant was used on a big Western ordnance job, producing 2" minus crushed gravel.
Started—May 12th.
Finished—November 6th.
Calendar time—179 days, 24 hours a day 7 days a week—total elapsed time—4256 hours.
Scheduled operating time—3920 hours.
Actual operating time—3320 hours or **84% of Scheduled Time.**
Aggregate production—463,223 cubic yards, 119 cu. yds. per scheduled hour for entire period. 139 cu yds. per actual operating hour.

JAW CRUSHERS



DIAMOND was the first maker of jaw crushers to use roller bearings, the long jaw and structural steel base. Greater tonnage per rated capacity. Handles hardest rock. 10 sizes for every primary crushing need.

BALANCED VIBRATORS

Accurately balanced—fast, positive separation **all over** screen. No choke—fast delivery. 11 sizes—up to 4 decks.

Washington Doings

(Continued from page 96)

in accordance with the provisions of Revised Procedural Regulation No. 1 or on its own motion, by order, adjust his maximum price or prices by an amount necessary to permit the maintenance or expansion of such production upon a basis which will cover total costs.

In determining the amount of adjustment which may be granted, consideration will be given to such factors as:

(a) Revenue from sales of such commodity and from all other sources, and

(b) Production; mining, quarrying, development, processing, and transportation costs; administrative and sales expenses; depreciation and depletion charges; taxes (excluding Federal and State income taxes); and capital investment.

(ii) Whenever it appears that the loss of a seller's production of mineral wool insulation would force his customers to resort to higher priced sources of supply and that the seller is unable to maintain his production at his maximum price or prices, the Office of Price Administration may, either on application for adjustment in accordance with the provisions of Revised Procedural Regulation No. 1 or on its own motion, by order, adjust his maximum price or prices by an amount adequate to cover his operating costs: *Provided however*, That in no instance will the seller's maximum price be increased to a price in excess of the general level of prices prevailing for alternative sources of the supply of the commodity. The term "operating costs" shall include the cost of labor, maintenance, supplies, power, taxes other than State and Federal income taxes, insurance, workmen's compensation, royalties, and other direct expenses, depreciation and depletion (wherever practicable as determined by the Bureau of Internal Revenue in the computation of the Federal income tax) and reasonable costs of selling and administration.

The 3 Percent Transportation Tax

O.D.T.—350: The 3 percent Federal transportation tax does not apply to amounts paid by private motor carriers for adjustment of costs under certain joint action conservation plans.

Under the Revenue Act of 1942, a federal tax of 3 percent is levied upon the amounts paid for transportation of property by rail, motor vehicle, water or air.

Where each private participating motor carrier operates his own equipment with his own personnel and merely pools merchandise with other private carriers for transportation and delivery services within a certain area the tax does not apply, the Bureau of Internal Revenue stated in a ruling to the O.D.T.

It does not matter whether the carriers are operating in local or over-the-road service, or both, the Bureau has informed the O.D.T.

Under these conditions, the amounts paid by one private carrier to another for the purpose of adjusting the cost of transportation and delivery of merchandise is not subject to the tax.

In such instances the parties to the joint action are not considered by the Bureau of Internal Revenue to be in the business of transporting property for hire within the meaning of the Act.

However, if the carriers set up a separate entity, such as a corporation, to perform transportation for all members, then the amounts paid by the merchants for this transportation service would be subject to the transportation tax, the Bureau also ruled.

A PEEK INTO POST-WAR PIPING

TOMORROW'S MINING REQUIREMENTS CALL FOR THESE NAYLOR ADVANTAGES!

- Always accurate in diameter.
- Concentric ends match correctly.
- Easier to install.
- Holds true cylindrical form.
- Stays tight and leakproof.
- Stronger—safer.
- High salvage value.
- Light weight saves steel.
- Cuts maintenance costs.
- Saves money.

Sizes: 4" to 30" in diameter—all types of fittings, connections and fabrications.

To do your piping jobs better, easier and more economically promises to be a war by-product that will work wonders in the post-war period. The outstanding performance of Naylor light-weight pipe on the battle fronts, plus the research and development work constantly in progress point the way to the solution of many mine-piping problems in the future.

Write for Naylor Catalog

Naylor

LOCKSEAM SPIRALWELD PIPE

NAYLOR PIPE COMPANY
1237 East 92nd Street
Chicago, Illinois

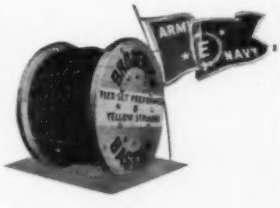
No time for absentee wire rope

In a mechanized war, fighting equipment *dares not* be absent; industrial equipment *should not.* Even though your wire rope is carrying many an extra burden, proper care will prolong its life. So . . . make sure that inexperienced operators understand its *correct* use. Gear up rope inspection. Avoid damaged sheaves and drums.

The prime way to get top rope performance is to *start* with the stamina of Preformed Yellow Strand. Install it on power shovels for hoist and swing lines, and as crowd and rack ropes . . . on dragline machines, too, for hoist and drag lines . . . and on clam shells for holding and closing lines. Preformed Yellow Strand is a quarryman's mainstay that *will stay* on the job.

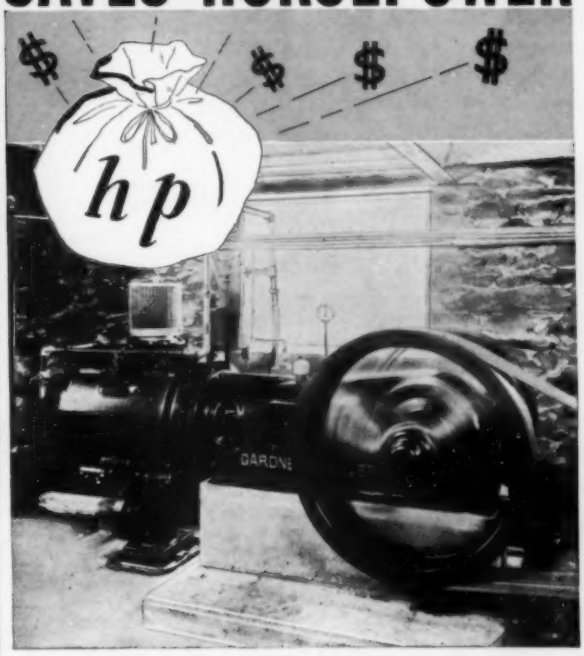
Broderick & Bascom Rope Co., St. Louis
Branches: New York, Chicago, Houston, Portland, Seattle
Factories: St. Louis, Seattle, Peoria

YELLOW STRAND
PREFORMED
WIRE ROPE



B & B's Army-Navy "E" Flag, Three Times Won, Means that . . .
We Serve the Government as We Serve Industry: with Determination that Our Entire Energies and Resources Shall Help to Win the War

SAVES HORSEPOWER



. . . BUT GIVES MORE AIR

THERE'S no horsepower wasted when you're operating a Gardner-Denver "RX" Single-Stage Horizontal Air Compressor. These compressors are designed with large and unrestricted valve and port areas, and with extra large water jackets for increased compressor efficiency. That assures adequate air capacity while horsepower requirements remain unusually low.

In addition, such construction features as rugged, dirt-proof main frame and Timken roller main bearings assure low maintenance cost throughout years of service. "Air-Cushioned" duo-plate valves are silent and durable—actually become tighter with use.

For full information on Gardner-Denver "RX" Horizontal Compressors for capacities from 89 to 1292 cubic feet displacement per minute, write Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER *Since 1859*

FINANCIAL NOTES

RECENT DIVIDENDS

Arundel Corp.	$ .25	Oct.	1
Florida Portland Cement Co. 7% ptc. pfd. (p100) (arrears)	3.50	Oct.	30
Ideal Cement Co.	.35	Sept.	30
Lehigh Portland Cement Co.	.37½	Nov.	1
Lehigh Portland Cement Co. pfd.	1.00	1/3/44	
Santa Cruz Portland Cement Co.	.25	Oct.	1
Signal Mountain Portland Cement Co. 8% pfd. (p100) (arrears)	4.00	Oct.	15
Standard Paving & Materials, Ltd., 62½c pfd. (np) (arrears)	.31¼	Oct.	1
Superior Portland Cement Co. Cl. A	.82½	Oct.	1
Yosemite Portland Cement Co. pfd.	.10	Oct.	1

RIVERSIDE CEMENT CO., Los Angeles, Calif., extended to September 28, the closing date of its exchange offer, offering new $5 dividend preferred stock on a share-for-share basis to holders of $6 dividend first preferred. Provided 10,000 shares are deposited for exchange, the company has proposed to call the balance of $6 dividend preferred at $102.50 a share. Funds for the call would be provided in whole or in part by a 3 percent loan from a group of banks.

•

CONSOLIDATED ROCK PRODUCTS CO., Los Angeles, Calif., presents the following consolidated income account for the years ended December 31:

	1942	1941
Net sales	$6,912,911	$4,780,974
Costs and expenses.	5,982,677	4,265,174
Deprec. & depletion	180,053	155,560
Operating profit	750,181	360,240
Other income	114,663	67,675
Total income	864,844	427,915
Bond interest	270,968	177,190
Bond discount	12,674	13,059
Other expenses	29,059	50,213
Federal income tax.	46,528	.....
Contingency reserve	200,000	.....
Net income	305,615	187,453

•

INDUSTRIAL SILICA CORPORATION, Youngstown, Penn., had a net profit of $86,000 for the first half of 1943, according to President L. M. Hansen. He reported that this figure was about the same as the same period a year ago. Sales showed an increase, he said, but costs were higher, resulting in a lower margin of profit.

•

STANDARD SILICA CORPORATION, Chicago, Ill., has announced that the subscription rights offered to stockholders, covering 11,000 additional shares of $1 par common stock at $5 per share, which expired June 15, 1943, was oversubscribed. Proceeds were added to the company's working capital. Due to the inability to compute Federal taxes at this time, no interim financial report will be made until the end of the year, but it was stated that sales for the first half of 1943 had exceeded the same period a year ago by 15 percent. Net profit was greater by 20 percent before Federal taxes.

•

CLEVELAND BUILDERS SUPPLY CO., Cleveland, Ohio, has proposed the merger of the Cleveland Builders Realty Co., with the Cleveland Builders Supply Co. The consolidated company would have an authorized capitalization of 240,000 no par shares. At present the company operates a number of plants on land owned by the Realty company.

(Continued on page 102)

★Where EAGLE Washers Are on the Job

★ ★ ★

EAGLE Washers are at work on wartime construction jobs all over the country and overseas.

They are being put to work more and more, not only because they're built to stand up under all conditions . . . but because they meet the demand for increasingly rigid specifications.

As a result of our pioneering efforts and wide experience in the field, there is an EAGLE unit for every washing, dewatering, or classifying problem you may encounter. EAGLE engineers have sponsored and guided the major developments in these fields.

"Back the Attack —Buy War Bonds"

Write for information about EAGLE Washing Equipment now—plan for tomorrow's business today.

EAGLE IRON WORKS
Des Moines, Iowa

Engineered BUTLER Design

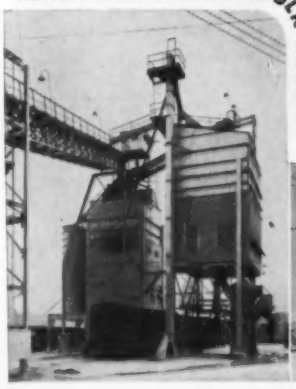
It's Design That Makes the Difference

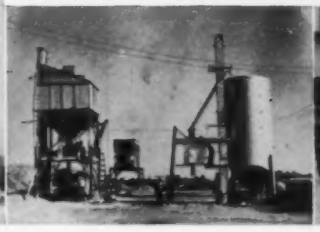
There's a vast difference between "just another plant" and a really successful installation; and that difference can be expressed in just two words: Engineered Design.

The symbol above is your guarantee that whatever Butler equipment you may be interested in will be right for your job, because it is engineered to fit the specific installation. Whatever your equipment needs may be, be sure to consult your Butler engineer—let him show you how Engineered Design will save you time and money. Write for literature today.

MIXING PLANTS • SAND AND GRAVEL PLANTS

READY MIX PLANTS • BULK CEMENT





BUTLER BIN CO. WAUKESHA WISCONSIN

PLANTS • BULK CEMENT TRANSPORT • CARSCOOP • CENTRAL

The Williams "SLUGGER" Crusher and Pulverizer Handles "ONE MAN" Stone • Saves Sledging

Also Makes 1¼", ¾" or Agricultural Limestone in One Operation

CUTAWAY VIEW of "Slugger" showing heavy duty hammers, liners and discs.

By reducing large rock to 1¼", ¾" or agricultural limestone in one operation, the "Slugger" has enabled operators to produce these sizes at a low cost per ton and with small investment.

Features include—Manganese steel hammers, heavy duty SKF bearings, adjustable breaker plate, hammer adjustments overcome wear, economical to operate.

The "Slugger" is built in Seven Sizes—from 30 to 150 horsepower —write for illustrated bulletins today.

The Williams Patent Crusher and Pulverizer Co.
800 St. Louis Ave., St. Louis, Mo.

SALES AGENCIES
CHICAGO 37 W. Van Buren
NEW YORK 15 Park Row
OAKLAND, CALIF. 1629 Telegraph Ave.

Williams
OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
PATENT CRUSHERS GRINDERS SHREDDERS

PEERLESS CEMENT CORPORATION, Detroit, Mich., reports the following income account for the years ended December 31:

	1942	1941
Net sales	$2,553,881	Not stated
Cost of sales	1,538,641	.....
Selling, etc., expense	314,236	.....
Operating profit	701,004	$ 749,983
Depreciation	111,433	114,168
Net operating profit	589,571	635,815
Other income	25,515	28,959
Total income	615,086	664,774
Interest, etc.	7,648	26,260
*Fed. income tax	205,000	155,000
Idle plant expense	42,887	66,000
Net income	359,550	417,515
Dividends	77,666	154,873
Surplus for year	281,884	262,642
Earned suplus, 1-1	631,576	1,044,610
Adjustments	1,177	†675,675
Earned surpl., 12-31	912,284	631,576
Earned per share	$1.16	$1.34
Number of shares	310,062	309,826

*No provision necessary for excess profits taxes.

†Includes $639,675 balance of appropriation necessary to effect increase in capital stock from $1 stated value to $5 par value per share.

•

ARUNDEL CORPORATION, Baltimore, Md., reported a net profit of $1,089,429 for the six months ended June 30, 1943. This compares with $672,309 for a like period in 1942.

•

AMERICAN LIME & STONE CO., Bellefonte, Penn., has called at 103 the entire issue of 1st 5½s, March 1, 1951, on September 1, 1943.

•

PACIFIC PORTLAND CEMENT CO., San Francisco, Calif., showed the following earnings statement for the six months' period ended June 30:

	1943	1942
Net sales	$3,054,193	$3,319,343
Cost of sales	2,397,736	2,332,170
Selling, etc., expense	143,121	196,007
General taxes	39,740	27,513
Provis. doubt. accts.	12,144	22,972
Operating profit	461,452	740,681
Other income	16,590	10,602
Total income	478,042	751,283
Idle prop. expense	18,116	23,218
Federal income tax	183,970	297,310
Net profit	275,955	430,755
Earn. pfd. share	$5.12	$7.91
*Earn. com. share	1.24	3.14
No. of pfd. shares	53,942	54,480
No. of com. shares	80,824	80,824

*Disregarding preferred arrears.

•

SCHUMAKER WALL BOARD CORPORATION, Los Angeles, Calif., reported a net profit of $35,715, after Federal income and excess profits, for the three months to July 31, 1943. For a like period in 1942, the net profit was $32,665.

Safety Award Dinner Funds to Red Cross

PENNSYLVANIA-DIXIE CEMENT CORPORATION workers at Clinchfield, Ga., did not celebrate the winning of the Portland Cement Association safety award this year with the customary barbecue, but the Macon, Ga., chapter of the Red Cross is $250 richer as a result of their patriotic action. The employes requested the company to give the estimated cost of the barbecue to the Red Cross. However, special ceremonies marked the presentation of the award. H. G. McDargh, southeastern regional manager of the company, presented the trophy; J. G. Lyles accepted the award in behalf of the employes; and J. Norvig, general superintendent of the company, presented the check for $250 to Roy I. Neal, chairman of the Macon chapter of the Red Cross. E. P. Newhard, plant superintendent, introduced the speakers. Otis Heathcock of the Georgia Department of Labor was the principal speaker of the day.

Buy Gravel Land

J. G. SHOTWELL, gravel contractor of Tucson, Ariz., who is furnishing materials for a military project, has purchased 863 acres of land underlaid with gravel, one and a half miles north of St. John, Wash., from heirs of the late Ed Davis. The sale was a cash transaction said to be $60,000. Del Kembel, Colfax, Wash., will operate the plant, according to the local report.

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1—**ROTARY CONVERTER** — Westinghouse, 1000 KW, Serial No. 1930945, 250 volts, D.C., complete with panelboard

1—**TRANSFORMER** — Westinghouse, 1100 K.V.A., Serial No. 463866, 3 Phases

1—**TURBINE** — Westinghouse, 100 HP, 2700 RPM, direct connected to Westinghouse reducing gear, ratio 3 to 1

AGITATORS

23—For 12' x 12' Tanks

BLOWERS & FANS

2—**FANS**—60" Sturtevant

1—**BLOWER**—Clarage No. 50

1—**FAN**—Clarage, Type SP, 60"

2—**FANS**—Raymond Mfg. Co., Size No. 11

BUILDINGS—STEEL

1—80' x 120' x 20', steel

DERRICK & CRANE

1—**DERRICK** — Steel Guy Derrick, 110 ft. Mast, 90' Boom, equipped with Clyde three-drum hoist, General Electric 84 HP, 230 Volt D.C. totally enclosed motor.

1—**JIB CRANE** — Brownhoist, No. 5991, 45' arm, capacity 4500 lbs.

DRYER—ROTARY

1—3½ x 44 ft.

KILNS & COOLERS

Various dimensions

SCREW CONVEYORS

6—**SCREW CONVEYORS**—12" x 300' long, steel case

1—**SCREW CONVEYOR** — 8" x 12', steel case

1—**SCREW CONVEYOR** — 12" x 35', steel case

1—**SCREW CONVEYOR**—12" x 160', steel case

2—**SCREW CONVEYORS**—12" x 110', no casing

1—**SCREW CONVEYOR** — 12" x 30', steel casing

1—**SCREW CONVEYOR** — 12" x 60', steel case

1—**SCREW CONVEYOR** — 12" x 35', wood case

3—**BELT CONVEYORS** — 30' long, 24" wide, bag carrier type.

FEEDERS

2—**Baily Feeders,** Type No. 2, complete with steel hoppers, 8½ dia. x 12' cone bottom, 12" screw conveyor, enclosed, 30' long bucket elevator, 36 x 12 x 25, steel housing

2—**FEEDERS,** Ferris Wheel Type, 4'6" wheel, 7 x 8 x 10 in. buckets, steel case

FLOATING EQUIPMENT

1—**DREDGE**—Manufactured by the American Steel Dredge Co., 64" x 30' x 6', Steel Hull complete with all auxiliaries ready to operate locomotive type boiler — Union Steam Company Pump, Pyle National Company Generator, Hoist Compound Engine 8"x10" Cylinders—2—28"x15" Chain Drums, Bull Gear, Pinion and Brake for each drum, 200 ft. ¾" Chain on Drums, 100 ft. ¾" Chain spare, 2—8" x 15" Nigger Head "Service Work". Spuds—1 each side Rack 30' long, 3" pitch, 7" face, 30" section of rack, separate steam engine for each spud, compound engine, 5" x 8" cylinders, gear to counter-shaft, worm gear to spud pinion, worm gear 30", pinion 6", boom 60' long, 11" x 12" box type, bucket 1¼ yd. Hayward

1—**TUG**—Manufactured by the American Steel Dredge Co., 40' x 13' x 6', ¼" Steel Plate Hull, Boiler and Engine

3—**SCOWS**—Steel Construction, 58' x 16' x 6', built by Johnson Bros.

1—**MACHINE BOAT**—Johnson Bros., 54' x 17' x 6'6", complete with dump hopper, cutter, scraper, elevator and loader. Driven by compound steam engine

GRINDING EQUIPMENT

1—**CLAY MILL** — American Clay Machinery Company, Dry Pan, 9' dia., with 2—48" x 10" grinding stones, cast iron construction

1—**PUG MILL**—15" dia. x 8½' with beaters

1—**TUBE MILL** — 5' x 20', F. L. Schmidt Co.

1—**TUBE MILL** — 5' x 22', F. L. Schmidt Co.

3—**KOMINUTERS** — No. 66, F. L. Schmidt Co.

2—**RAYMOND MILL**—4 roll

SCREENS

4—**SCREENS**—4' x 5', W. S. Tyler Co. Hummer Screens, complete with generator

2—**ROTARY SCREENS**—18" x 8'

TRUCK SCALE

1—**SCALE**—Howe Truck Scale, capacity 40,000 lbs., platform 9' x 20', with Pilse ticket marker.

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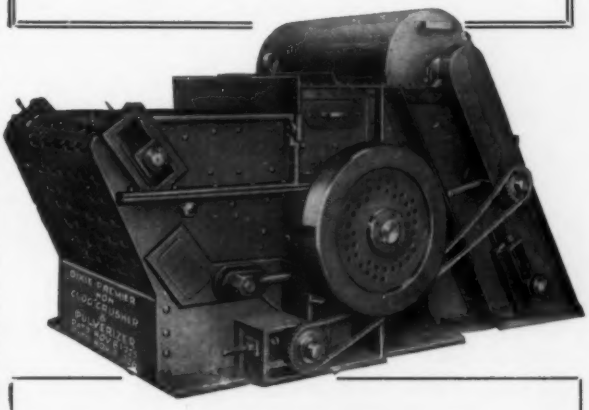

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Chemist Corner

(Continued from page 67)

'Atoyac' cement as manufactured by the Landa Company, under patents held by the Cement Process Corporation, I would like to stress the fact that we do not consider the cements as manufactured under our process, to be of the blended variety.

"Blended cements, as I understand them, may be Portland or other cements blended together to give certain desirable properties not obtainable from any one particular cement. Blended cements may also consist of mechanical mixtures of, for example, Portland cement and limes, slags, siliceous or argillaceous materials, or other materials which will give the ultimate product varying features such as plasticity, resistance to alkali ground or sea waters, waterproofing properties, quick or delayed setting properties, high early strength, and the like.

"'Atoyac' cement is considered as being a processed cement, the same as Portland, high alumina, and similar processed cements. As you have

(Continued on page 106)

TABLE No. 1

(a) Blended low-lime portland ground with diatomaceous earth.

Parts portland cement	Parts diatomaceous earth	Strength values at ages stated below—3 day	7 day	28 day	6 month	1 year
1.000	0.000	100%	100%	100%	100%	100%
0.975	0.025	86	86	94	80	71
0.950	0.050	78	89	95	75	71
0.925	0.075	76	87	94	77	68
0.900	0.100	68	78	83	71	64
0.875	0.125	54	60	75	67	58
0.850	0.150	49	49	67	60	43

Log: All above tests were compression, 6" x 12" cylinders being used, 1:3:6 concrete mix maintained at uniform 2½" slump.

TABLE No. 2

(b) Blended normal-lime portland ground with diatomaceous earth.

Parts portland cement	Parts diatomaceous earth	Strength values at ages stated below—3 day	7 day	28 day	6 month	1 year
1.00	0.00	100%	100%	100%	100%	100%
0.99	0.01	108	109	113	98	72
0.98	0.02	117	119	130	103	84
0.97	0.03	135	138	136	117	82
0.96	0.04	146	149	145	117	87
0.95	0.05	193	200	154	119	90
0.94	0.06	208	174	164	134	94
0.93	0.07	232	160	142	120	80
0.92	0.08	166	133	134	102	64

Log: All above tests were compression, 6" x 12" cylinders being used, 1:3:6 concrete mix maintained at uniform 2½" slump.

TABLE No. 3

(c) Blended high-lime portland ground with diatomaceous earth.

Parts portland cement	Parts diatomaceous earth	Strength values at ages stated below—3 day	7 day	28 day	6 month	1 year
1.00	0.00	100%	100%	100%	100%	100%
0.99	0.01	98	97	103	88	62
0.98	0.02	117	100	108	88	60
0.97	0.03	119	113	113	88	67
0.96	0.04	119	110	124	92	67
0.95	0.05	117	112	133	102	74
0.94	0.06	119	109	132	102	71
0.93	0.07	120	129	142	107	78
0.92	0.08	126	139	150	114	86
0.91	0.09	125	160	149	114	80
0.90	0.10	168	160	170	127	94
0.89	0.11	162	167	171	139	98

Log: All of above tests were compression, 4 x 8 in. cylinders being used, 1:2½:5 concrete mix maintained at uniform 2" slump.

TABLE No. 4

(d) Blended extremely high-lime portland ground with diatom. earth.

Parts portland cement	Parts diatomaceous earth	Strength values at ages stated below—3 day	7 day	28 day	6 month	1 year
1.00	0.00	100%	100%	100%	100%	100%
0.99	0.01	110	109	101	91	70
0.98	0.02	125	127	113	90	73
0.97	0.03	153	137	117	94	81
0.96	0.04	153	128	119	94	77
0.95	0.05	151	148	128	99	77
0.94	0.06	186	182	129	101	81
0.93	0.07	186	188	140	101	84
0.92	0.08	224	210	149	100	80
0.91	0.09	233	211	157	117	86
0.90	0.10	300	226	159	106	86
0.89	0.11	397	259	172	118	86
0.88	0.12	400	271	183	127	94

Log: All of above tests were compression, 4 x 8 in. cylinders being used, 1:2½:5 concrete mix maintained at uniform 2" slump.

Uniform Separation

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of cement, lime and any other finely ground metallic or non-metallic material within a range of 80 to 400 mesh.

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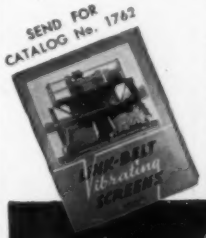

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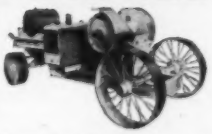

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Chemist Corner

(Continued from page 104)

probably noticed in the trade journals, or from perusal of U. S. Patent No. 1,912,883, lime is mixed with siliceous or argillaceous materials in a finely divided state, and hydrated under conditions embodying control of moisture and heat, and the mixture ground together. Under this procedure reactions take place between the lime and siliceous constituents of the mixture, forming chemical combinations which give to the product setting and strength properties. After the hydrating stage, and previous to the introduction of the mixture to the grinding mill, Portland cement clinker is added in proportions determined by the type of product it is desired to produce, and this clinker acts as an energizer during the grinding procedure, and results in further compounds being formed during the grinding under controlled moist-temperature-fineness conditions.

"At Puebla we find that the use of 50/65% of Portland cement clinker in connection with a 25 part caustic lime-75 part volcanic river sand mixture, previously hydrated, and the total ground to a fineness of around 92% passing the No. 200 mesh sieve, under controlled moisture-temperature conditions, gives us a product equal in setting properties though slightly superior in strength to our standard Landa Portland cement manufactured from the same clinker.

"Proportioning of the lime/siliceous material, that is, varying the proportions of these materials, together with varying the time limit of hydration, of moisture, of temperature, and of grinding conditions, as well as the amount of Portland cement clinker used, results in a variety of products adaptable to a number of needs and uses.

"For example, a plastic cement having standard setting and strength properties for use in concrete construction where a plastic cement is required; a slow or quick setting product; a product having a low heat of hydration; a product resistant to alkali ground waters and sea waters; a water-proofed product; low, normal or high early strength; a masonry product adaptable as a brick mortar on the one hand, or as a rough or smooth hard wall plaster or stucco.

"In the case of each of the cements we have produced under this process, for general or specified uses, we have found them to show great increases in strength, that is, where Portland cement strengths taper off after the 28-day test period, we find remarkably great increases in strength of the new processed cements from the 7-day test period up through the 1-year test period (tests upon these cements had not as yet reached the 2-year test period).

"In the manufacture of cements under the process in question, I might state that we have found the siliceous and argillaceous materials as a whole, suitable for use. Diatomite, tripoli and other finely divided siliceous materials react more readily with the caustic lime during the hydration and grinding procedure, than do some types of sands, clays, etc.; however, we find that similar results are obtained with sands, clays, etc., when these materials are brought to a finely divided state prior to the hydration stage of the process.

"Limestone, whether of the siliceous, cement-rock, or high calcium grades has been found to give the desired results. Where high magnesia limes are found satisfactory for use in the production of masonry and plastering cements, we do not, and will not recommend their use in the

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production of cements of quality equal to the Portland or super cements.

"I am of the opinion that some distinction will eventually have to be made between blended and processed cements.

"In the development of specifications for new cements, this distinction should be made in fairness to both the producer and the consumer.

"I have had considerable experience with blended cements where Portland cement formed the main constituent, and hydrated lime, diatomaceous earth and other materials formed the minor constituents of the blended product, and, to the end of enlarging somewhat upon the written data and observations, a series of tests made by myself upon blended cements I have produced, are shown in the preceding tables."

Blended Cements

Cements, composed of varying percentages of Portland cement, were ground with diatomaceous earth. The Portland cements used consisted of (a) three cements, 1, 2, 3, which can be termed as low-lime Portland; (b) three cements, 4, 5, 6, which may be considered as normal-lime Portland; (c) three cements, 7, 8, 9, which may be termed high-lime Portland; and (d) three cements, 10, 11, 12, which may be termed as excessively high-lime Portland. All of these cements were produced at a given plant under normal grinding and kiln conditions on successive days.

The free lime contents of the Portland cements were as follows:—

	Percent Free Lime
1. (a) Low-lime type	0.21
(b) Normal-lime type.....	0.84
(c) High-lime type	1.69
(d) Extremely high-lime ..	3.61

In the four groups of tests carried out above, and consisting in blends

(Continued on page 108)

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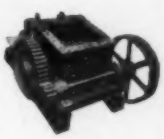

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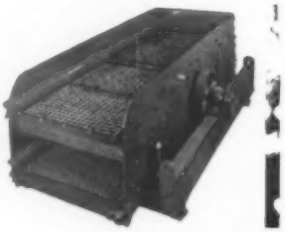
SECO
VIBRATING SCREENS



HAVE BECOME THE ACKNOWLEDGED STANDARD OF VIBRATING SCREENS.

THE PATENTED DESIGN IS EXCLUSIVE AND DIFFERENT.

Screen Equipment Co.

Chemist Corner

(Continued from page 107)

of Portland cements ground with diatomaceous earth, there were made a series of minor chemical and physical tests, data covering same being too bulky for inclusion here.

It might be stated that the Portland cements used in the above tests were somewhat higher in iron oxide content than normal Portland cements.

Perusal of test data would suggest that the greater the free lime content in a given Portland cement, the greater the increase in strength will be through the grinding in of diatomaceous earth to same. However, it would appear that, regardless of the free lime content in the cement, the increase in strength is at early ages and not continuous at later ages, suggesting that advantages are obtained only during the period that the free lime in the cement is undergoing reactions with the silica, etc., in the diatomaceous earth.

Gypsum Output Declines

REPORTS to the Bureau of Mines show a continuance of the first quarter decline into the April-June period of 1943. Domestic crude gypsum production declined 18 percent and calcined gypsum declined 19 percent, compared with the April-June period of 1942.

Wallboard in Demand for War Construction

However, the demand for wallboard showed sales advancing 20 percent in the second quarter of 1943 over a similar quarter of 1942. Sales of sheathing declined 45 percent from the April-June period of 1942 but this decline was counterbalanced partly by the sales of laminated board which are dual purpose products and serve as both siding and sheathing in war construction. Crude gypsum mined in the April-June, 1943, period totaled 1,017,131 tons as compared with 1,234,293 tons in a like period in 1942; calcined gypsum totaled 675,307 tons in the second quarter of 1943 as compared with 829,206 tons in 1942; portland cement retarder dropped to 242,122 tons in 1943 from 331,177 tons in 1942; wallboard totaled 274,236,000 sq. ft. in 1943 as against 229,167,000 sq. ft. in 1942; sheathing went from 74,174,000 sq. ft. in 1943 to 135,999,000 sq. ft. in 1942; laminated board production totaled 49,166,000 sq. ft. with no comparative figure for the 1942 second quarter.

30 Years of Experience
Wrapped Up in This Super
AMERICAN CRUSHER

Producers who use AMERICAN CRUSHERS are sold on their super performance. They say AMERICANS give longer lasting trouble-free service, and uniform, exacting production. They're more profitable to operate—produce 10 to 100 tons per hour.

Write us about our crushing problems, and send for literature.

AMERICAN PULVERIZER CO.
1245 Macklind Ave. St. Louis, Mo.

You get Operating Advantages in BLAW-KNOX BUCKETS due to better Structural Features

The rigid head in Blaw-Knox Buckets preserves fixed cable alignment between upper and lower sheaves, avoiding cable wear caused by loose or wobbly head construction

All four corner bars are mounted directly on the head pin, thus all impact or pounding action between the head and scoop structure is transmitted directly and not through bolts or rivets

This and many other exclusive features of Blaw-Knox Buckets are explained and illustrated in CATALOG No 1757 Write for your copy today

BLAW-KNOX DIVISION
of BLAW KNOX COMPANY
Farmers Bank Building • Pittsburgh, Pa.

66

BLAW-KNOX Digging and Rehandling
BUCKETS

Agricultural Liming Materials Advisory Committee

NATIONAL LIME ASSOCIATION reports:

"The first meeting of the Agricultural Liming Materials Industry Advisory Committee was held in Washington, D. C., on August 26. This Committee was appointed by the War Food Administration to consult with it in respect to supplies of liming materials needed for the war food program, and on problems of manufacture and distribution.

"In his opening remarks, P. H. Groggins of the W.F.A. emphasized the need for maintaining and even increasing the production of these materials to meet the requirements of their food program, and at the same time called attention to the serious falling off in the production.

"Representatives of W.P.B., O.P.A., A.A.A., and O.D.T. were present and gave short talks on the activities of their respective departments in connection with the problems affecting the production and distribution of liming materials. In the general discussion which followed, certain very definite limiting factors were brought out. The most serious was manpower and second in importance was the lack of equipment for distributing liming materials to the farms, including the shortage of gasoline and tires for existing trucks.

"Price ceilings also were discussed at some length. These were affecting production, particularly among small manufacturers, many of whom have gone out of business. Affected also were companies that have been selling limestone screenings as a low-priced by-product, but whose present tonnage of the major commodity is not sufficient to maintain the former volume of the by-product material.

"It was evident from the meeting that food production is of serious concern to the Government and that the production of liming materials for the food program is recognized as being essential to the war effort. Lack of information prevented definite recommendations other than to urge manufacturers to take advantage of the existing provisions of the various war agencies to secure maintenance, repair, and operating equipment; price adjustments, etc.

"Those present at the meeting representing the lime industry were D. K. Shroyer, H. E. Millard, Annville, Pa.; Davis Rich, Swanton Lime Works, Swanton, Vt.; E. I. Williams, Riverton Lime & Stone Co., Riverton, Va.; Frank Coombs, The Ohio Hydrate & Supply Company, Woodville, O. (members of the committee), and S. W. Stauffer of the Association staff."

Representing the Crushed Stone Industry

ADMINISTRATIVE DIRECTOR J. R. BOYD of the National Crushed Stone Association reports the following representatives in attendance at the meeting: R. D. Beatty, Dolcito Quarry Co., Birmingham, Ala.; W. S. Brantingham, Lime Products Co., Fayetteville, Ark.; Harold Kaiser, Solvay Sales Corporation, Syracuse, N. Y.; E. J. Krause, Columbia Quarry Co., St. Louis, Mo.; E. J. Leary, Ed. J. Leary Construction Co., for R. M. Murphy, Black Creek Limestone Co., Black Creek, Wis.; A. W. McThenia, Acme Limestone Co., F. Springs, W. Va.; Joseph Mills, Bellefonte Stone Products Corporation, New York, N. Y.; H. M. Thomas, Ft. Scott Hyraulic Cement Co., Ft. Scott, Kans.; and R. T. Willingham, Willingham-Little Stone Co., Atlanta, Ga. Another meeting will be held on October 15.

"PENNSYLVANIA"
REVERSIBLE
HAMMERMILL

installed to meet increasing demands from the agricultural and process industries, for finely prepared "Pennsylvania" limestone — replacing the smaller "Pennsylvania" non-reversible STEEL-BUILT Hammermill, in service since 1921.

Automatic turning and resharpening of Hammers and Cage Bars—increased capacity and/or fineness—decreased power demand per ton and sharply cut maintenance cost, characterize "Pennsylvania" Patented REVERSIBLE Hammermill performance.

Put your reduction problems up to us.

PENNSYLVANIA CRUSHER COMPANY

Liberty Trust Bldg. PHILADELPHIA, PA.

MANGANAL

(Reg. U. S. Pat. Office. U. S. Patents 1,876,738—1,947,167—2,021,945)

11 to 13½% Manganese Nickel Steel

WELDING PRODUCTS

Manganese Steel Jaw Crusher Plate Rebuilt with Manganal Applicator (Filler) Bars and Welding Electrodes.

Applicator (Filler) Bars

Rounds
3/8" to 1½"

Squares
½" to 1"

Flats
2 x 3/8, 3 x 3/8, 4 x 3/8,
1 x ½, 2 x ½, 3 x ½, 4 x ½,
4 x ¾, 2 x 1, 3 x 1, 4 x 1
16 to 20 ft. lengths

Save Welding by Using Applicator Bars

Sole Producers

STULZ-SICKLES CO.
134 Lafayette St.
Newark, N. J.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

...the Correct Rope for your equipment

made to meet the needs of

ROCK PRODUCTS OPERATORS

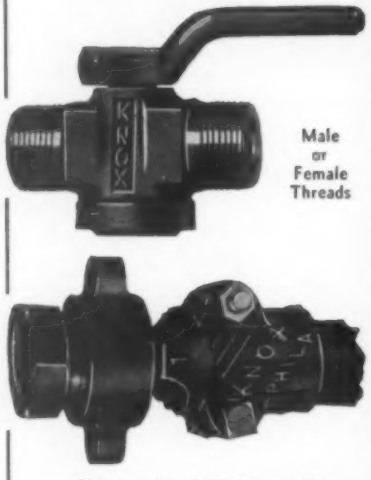
- PREformed
- Internally Lubricated
- Made from selected steels
- Made by craftsmen with years of experience

MACWHYTE COMPANY

2949 Fourteenth Ave., Kenosha, Wis.

MILL DEPOTS: New York, Pittsburgh, Chicago Ft. Worth, Portland, Seattle, San Francisco

Distributors throughout the U. S. A



Male or Female Threads

Recognized Universally as the ULTIMATE in Valves and Couplings

KNOX MANUFACTURING CO.

818 CHERRY ST., PHILA. 7, PA.

Since 1911 Producers of

KNOX

Valves-Couplings-Nipples-Clamps-Menders

Ready-Mixed Concrete Costs

THE *O.P.A.* HAS ASKED 21 officers of companies engaged in the ready-mixed concrete industry to serve as an industry advisory committee. Presumably this committee will investigate costs as well as prices.

There are many angles to the ready-mixed concrete industry. It is, at least in the northern half of the country, pretty much a seasonal industry, although war construction has resulted in more winter business than was formerly considered feasible.

Probably few industries require a larger initial investment for the same amount of annual business, and operating costs are high for obvious reasons. But non-operating costs are also high because it is costly to have such high priced equipment idle for any length of time. Therefore, it is one of those industries where volume is the all important cost factor.

First, these are the labor conditions met with:

SUMMARY OF WAGE AND HOUR CONDITIONS

A—International Hod Carriers, Building and Common Laborers Union of America: Cement and Concrete Workers; Includes Batchers, Truck Spotters, Bulk or Package Cement Handlers.

B—International Hod Carriers, Building and Common Laborers Union of America: Sand, Gravel, Crushed Stone, Ashes and Material Yard Workers; Includes Boat Trimmers, Dock Men, General Yard Labor. Watchmen if they do any yard cleaning labor.

C—International Teamsters, Chauffeurs, Warehousemen and Helpers of America; Building Material Chauffeurs.

D—International Hoisting Engineers and Firemen of America: Building Construction Workers.

E—International Association of Machinists: Includes all plant and truck Mechanics and Mechanics' Assistants.

HOURS	A*	B	C	D	E
Regular Day	8 Hrs.	8 Hrs.	8 Hrs.	8 Hrs.	8 Hrs.
Regular Week	6 days (48 hrs.)	5½ days (44 hrs.)	6 days (48 hrs.)	5 days (40 hrs.)	6 days (48 hrs.)
Minimum for reporting when not employed	None	2 hrs.	None	——	None
Minimum when employed	4 hrs.	4 hrs.	8 hrs.	40 hrs.	8 hrs.
Guarantee	None	None	None	40 hrs.	None
RATES/HOUR					
Regular Time	$1.21-3/7	$0.84½	$1.06¼	$2.00	$1.00 Min.
Overtime	$1.82-1/7(1½)	$1.26¾(1½)	$1.59⅜(1½)	$4.00(2)	$1.50(1½)
Sundays and Holidays	$2.42-6/7(2)	$1.69(2)	$2.12½(2)	$4.00(2)	$1.50(1½) Sun. $2.00(2) Hol.
Sundays and Holidays after 8 hrs.	$2.42-6/7(2)	$1.69(2)	$3.18¾(3)	$4.00(2)	$2.00
Number of Holidays with regular pay if not worked	11†	6†	11†	11	6
Vacation	None	None	‡	None	None
Expiration	12/31/43	3/31/45	6/30/45	§	12/6/43

*If 4 or more loads of concrete are produced at plant two workers minimum to be employed at that plant.

†Workers working three (3) full days to be paid 8 hours for Holidays occurring that calendar week.

‡One week's vacation with 48 hours' pay provided worker has worked 120 days in a calendar year. If the worker is paid for a Holiday it shall be considered a working day.

§There has been no written agreement with Hoisting Engineers Local for past seven or eight years.

A large West Coast operator once said he could tell what the atmosphere of his office was going to be all day from the number of parked idle trucks he saw lined up in the yard when he went to work.

Cost data in this industry have not been readily available. Herewith are some cost data of a fairly large Eastern seaboard operator which may or may not be typical. They are for 1942 when the operator had a very fair volume of business. He is permitting their publication in hopes that others will make as thorough studies of the business as he has—and that they, too, will make their figures available.

UNIT COST ANALYSIS (Per Cu. Yd.)

	Cost/C.Y.	Percent
Material—		
Cement	$2.16	38
Fine and Coarse Aggregate	1.48	26
Plant (Including Depreciation)	.455	8
Truck (Including Depreciation)	.89	15.5
Selling and Administration	.31	5.5
Total Expense	$5.295	93 —
Total Income	5.70	100
Net (before taxes)	0.405	7 +

PLANT UNIT COST ANALYSIS

	Plant	Derrick	Cement Handling
Depreciation	$0.065	$0.030	$0.005
Insurance	0.007	0.007	———
Real Estate and Taxes	0.013	0.013	———
Wages	0.139	0.075	0.005
Elec., Power and Light	0.013	0.020	0.006
Maintenance	0.040	0.023	0.005
Water	0.015	———	———
Demurrage Credits	———	—0.024	———
Total	$0.292	$0.144	$0.021

$0.457/C.Y.

Derrick handling costs $0.11½/C.Y. of raw material used in production.

Cement handling costs $0.017/Bbl. of cement used in production.

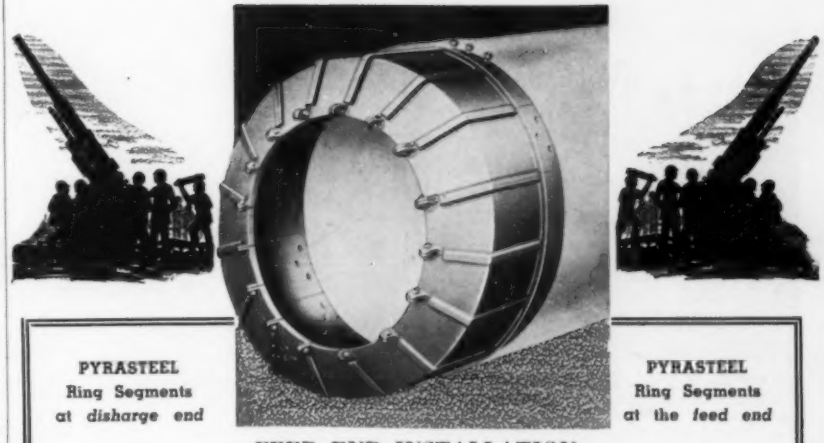
Derrick rope costs $0.01/C.Y. concrete.

COST ANALYSIS ON UNIT TRUCK BASIS

*Average Operating Cost per Truck per Day		$33.70
		Percent
Drivers Wages	$11.22	33
Maintenance and Miscellaneous	9.30	28
Depreciation (5 yrs.)	6.50	19
Fuel and Oils	2.90	9
Insurance	2.15	6
License	.89	3

(Continued on page 112)

A big mouthful with every bite
In dirt, clay, coal, gravel or ore you can rely on one of the tough, properly designed, Brownhoist buckets to take a full load with every bite. Extra large sheaves reduce rope wear to a minimum. Brownhoist Buckets are available in rope-reeve, power-wheel and link type. For prices and further facts write INDUSTRIAL BROWNHOIST CORPORATION, Bay City, Michigan. Offices in New York, Philadelphia, Pittsburgh, Cleveland and Chicago.
BROWNHOIST BUCKETS
GIVE MORE YEARS OF
TROUBLE-FREE PERFORMANCE



PYRASTEEL Ring Segments at *discharge end*

PYRASTEEL Ring Segments at the *feed end*

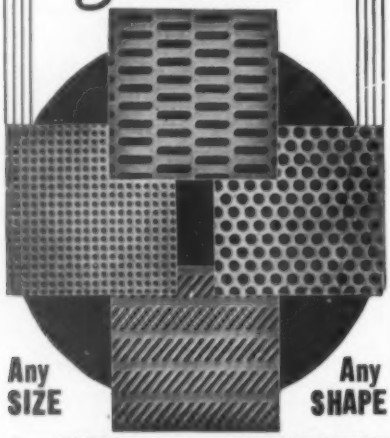
FEED END INSTALLATION

PYRASTEEL Protection at *both* ends

You can't afford to risk kiln-end "burnouts" that cause serious shut-downs and costly repairs. Remember that PYRASTEEL Kiln-Ends are available for both the *discharge and the feed ends* of your rotary kiln. They give continuous service at high temperatures, and outlast ordinary castings many times over . . . as proved in scores of installations where PYRASTEEL is giving satisfactory results. *Write for Bulletin of this* "Sure-Fire" heat-resisting alloy.

CHICAGO STEEL FOUNDRY COMPANY
KEDZIE AVE & 37TH ST
CHICAGO
PYRASTEEL for high temperatures
Makers of Alloy Steel for 30 Years
EVANSTEEL for strength

PERFORATED METAL
Screens



Any SIZE Any SHAPE

Any METAL Any PERFORATION

For vibrating, shaking and trommel screens.

Excellent material and workmanship for good screening results.

The Harrington & King PERFORATING CO.

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All ambitious production men who are genuinely interested in self-improvement—in preparing for the future—are invited to send for "Forging Ahead in Business." This valuable booklet outlines the Institute's time-tested training plan. It was prepared by the Staff in cooperation with prominent industrialists.

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Please mail me a copy of the 64-page book—"FORGING AHEAD IN BUSINESS," and also a copy of "HOW TO PREPARE AN ENGINEERING REPORT," both without cost.

Name.....

Business Address.....

Storage	.74	2
Total	$33.70	100

*Average operating cost per truck determined by dividing total Trucking Expense for 1942, using 5½ day week for 52 weeks, times number of units in fleet, as divisor.

COMPARATIVE COSTS—GASOLINE vs. DIESEL POWERED TRUCKS

	5 Cu. Yd. Gasoline	6 Cu. Yd. Diesel
Wages	$11.00	$11.00
Maintenance and Miscl.	11.40	8.50
Depreciation	6.40	6.40
Fuel and Oils	5.70	2.20
Insurance .	2.15	2.15
License	.85	.85
Storage ...	.60	.60
Total	$38.10	$31.70
@ 6 trips per day...	30c/C.Y.	36c/C.Y.
	$1.27	$0.88
	144%	100%

Lone Star Supplies Flux Stone

IT IS INDICATED from a Texas-Louisiana Freight Bureau docket bulletin that the Lone Star Cement Corporation is supplying flux stone from one of its Texas quarries. It is proposed to establish a rate of $1.00 per ton on crushed limestone in carloads from Lone Star Spur to Daingerfield, Texas. This rate is to apply only on crushed limestone to be used in blast furnaces in the manufacture of iron and steel.

Plan Large Idaho Phosphate Plant

J. R. SIMPLOT, Caldwell, Idaho, owner of a large dehydrating plant has plans for a "superphosphate" plant in eastern Idaho to produce 50,000 tons annually for fertilizer. It was announced that construction will start as soon as approval of the W. P. B. for necessary materials is obtained.

COST ANALYSIS—TOTAL INCOME AND EXPENDITURES

	Total in Dollars	Percent of Total Income	Cost Per Cu. Yd.
Raw Material	$576,524	64	$3.64
Wages and Salaries.....	118,033	13	.74
Maintenance and Expenses.....	63,252	7	.40
*Depreciation {Truck—5 Yr.	27,302	4.7	.27
*Depreciation {Plant and Property—8 Yr...	15,850		
Oil, Gas and Fuel Oil.....	12,314	1.3	.08
Insurance (All Classes)	9,042	1	.06
Rent and Real Estate Taxes.....	6,721	0.7	.04
Power and Light.....	5,774	0.7	.035
Truck License	3,635	0.4	.02
Telephone and Telegrams.....	1,954	0.2	.01
Total Expense	$840,401	93—	$5.295
Total Income	904,896	100	5.70
Net Income (Before Taxes)	$ 64,495	7+	$0.405

*Truck Depreciation includes Shop Bldg. and Equipment plus Body and Chassis Depreciation.
Plant Depreciation includes Office Bldg. and Equipment plus Plant Depreciation.

UNIT COST ANALYSIS—TRUCK OPERATIONS (Per Cu. Yd.)

	Pass. Cars	TRUCK Body	TRUCK Chassis	Shop	Total
Depreciation	$0.010	$0.055	$0.107	$0.003	$0.175
Insurance	.005	.045		.005	.055
License		.022			.022
Real Estate and Taxes...		.011		.005	.016
Operating Wages		.322			.322
Motor Fuel	.005	.028	.028		.061
Motor Oil and Grease...		.005	.010		.015
Maintenance ..... (Outside Labor & Parts)	.005	.038	.100		.143
Repair Shop					
Wages		.030	.040		.070
Maintenance and Tools		.005	.007		.012
Power and Light.....				.003	.003
Total	$0.025	$0.853		$0.016	$0.894

Tire Costs and Maintenance 40 percent ($0.04/C.Y.) of Chassis Maintenance Costs.

MOVE MORE per $

GRAVEL, sand, crushed rock and similar materials can be moved from pits, banks or stockpiles most cheaply with a Sauerman machine.

There is a double saving when you use a Sauerman machine. You keep down your equipment investment and your daily operating expense is lower than with any other equipment able to dig and haul an equal yardage. One man handles the entire operation. Capacities range from 10 to 600 cu. yd. per hour.

SAUERMAN BROS., INC.
530 S. Clinton St., Chicago

SAUERMAN
LONG RANGE MACHINES

Phosphate Rates Too High

UNDER I.C.C. docket 28960, it was recently held that rates on crude, ground and unground phosphate rock from Florida to Indiana, Illinois, Ohio and Michigan were unreasonable and reparation was awarded to the complaining companies.

It was recommended that present rates be found unreasonable by the commission to the extent that they exceed rates 20 percent lower than the rates on fertilizer materials authorized between official and southern territories, 232 I. C. C. 301. Current rates from Florida to Woodlawn, Alliance, Maumee, Columbus, Sandusky, and Silica, Ohio; Louisville, Ky.; Hartsdale, Indianapolis, and Peru, Ind.; and Lansing, Holland, and Saginaw, Mich., are $8 a ton.

State Crushing Plant to Close

IN SPITE of the fact that convict labor was used to operate the State-owned agricultural limestone plant and quarry near Smithtown, N. C., in Yadkin County, Governor Broughton has ordered it closed as of October 1 because it was losing money. Another reason advanced for the closing was the poor quality of the stone for agricultural liming purposes.

Made of Acid Open Hearth Steel Wire

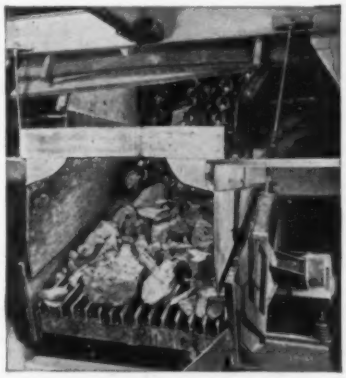
Round Strand
Flattened Strand
Preformed
Steel Clad
Non-Rotating

The Service Record of this wire rope continues to make and hold friends.

MADE ONLY BY
A. LESCHEN & SONS ROPE CO.
Established 1857
5909 Kennerly Avenue St. Louis, Mo.
New York — Chicago — Denver
San Francisco — Portland — Seattle

CONTROLLED FEEDING

Wherever the feed to crushers, grinding mills, grizzlies, dryers, belt conveyors, etc., must be controlled . . . Jeffrey-Traylor electric vibrating feeders will provide the ultimate in operating flexibility and dependability. Capacities from few ounces up to 1500 tons per hour in heavy duty types.



THE JEFFREY MANUFACTURING COMPANY
935-99 North Fourth Street, Columbus, Ohio

Jeffrey-Traylor 5 ft. wide grizzly feeder (above) controlling feed and by-passing fines ahead of primary crusher.

●

Jeffrey-Traylor 5 ft. wide feeder (left) handling run of quarry material from skip hoist hopper to crusher in large cement plant.

Catalog No. 750-N

NOW- *MORE THAN EVER BEFORE.....*

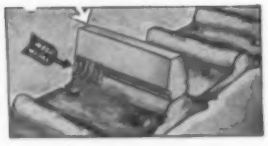
It is necessary to install equipment with long life built into its construction. Simplicity Gyrating Screens have a proven record of long life, made during the past seventeen years of operation in 1,500 different plants, producing aggregate.

In addition, we maintain the very efficient Parts and Service Department of our company, ready at all times to provide the proper maintenance needed today to keep your equipment operating at top efficiency.

SIMPLICITY ENGINEERING CO.
DURAND - - - - MICHIGAN

Rebuild your
TRACTOR GROUSERS
WITH BULLDOG
Grip-Lugs

EASILY WELDED



Send for Bulletin RP-6

INCREASES TRACTION
EFFICIENCY
A QUICK AND
ECONOMICAL REPAIR

Allied Steel Products, Inc.
N. B. C. Bldg., Cleveland 14, Ohio

OBITUARIES

JOSEPH G. KUHN, executive vice-president of The Arundel Corp., Baltimore, Md., and a leading hydraulic and dredging engineer, passed away recently. In 1917 Mr. Kuhn supervised the building of what was then the country's largest drydock at the Philadelphia Navy Yard. He was also associated with the dredging of the New York Barge Canal in 1913 and the construction of a breakwater at Cape Lookout, near Wilmington, N. C.

•

BERL MCDANIEL, chemist at Superior Portland Cement, Inc., Concrete, Wash., until his retirement in 1939, passed away recently at the age of 64.

•

SAM E. UPDEGRAFF, secretary-treasurer, Alpha Sand and Gravel Co., Granite, Okla., passed away recently. His widow, Mrs. Gladys Updegraff, is now president of the firm.

•

PAUL RAPP, formerly research associate of the Calcium Chloride Association and prior to that senior research associate for the Atlas Lumnite Cement Co., New York, N. Y., died recently at the age of 44. Born in Lititz, Penn., Mr. Rapp graduated from Franklin and Marshall College in 1920 and took additional courses at the graduate school of the Bureau of Standards. In 1928 he received his M.S. degree in chemistry at George Washington University. From 1926 to 1932 he was a senior research associate for the Atlas Lumnite Cement Co. and held a fellowship at the Bureau of Standards.

•

DAVID ALEXANDER of Petersburg, Va., secretary-treasurer of the Virginia Mineral and Aggregates Association, died recently at the age of 55. Mr. Alexander was a native and life-long resident of Petersburg, and a graduate of Virginia Polytechnic Institute. For a long time he was connected with the Dixie Sand and Gravel Corp., Petersburg, Va.

•

MRS. LUELLA MCMILLIN, widow of the late J. S. McMillin, founder of the Roche Harbor Lime Co., Roche Harbor, Wash., passed away recently at the age of 86.

•

CURTIS H. TRONE, assistant treasurer of the Thomasville Stone and Lime Co., Thomasville, Penn., passed away recently.

Via Barber-Greenes

● Securing economical distribution and compact plant design, this Barber-Greene system of conveyors was worked out to screen into three sizes. Outstanding is the fact that the three B-G stockpiling conveyors are supported out of the pile by B-G steel A-frame supports, greatly aiding reclaimation operations.

● The reciprocating feeder, four belt conveyors, and A-frames are all B-G standard pre-engineered units, selected for this construction. Our engineers can help you with your material handling problems.

Q-26

BARBER GREENE
AURORA ILLINOIS

WILFLEY
centrifugal SAND PUMPS

for Slurries, Sand Tailings Slimes, Acid Sludges

Save Pumping Cost

Continuous operation without attention for long periods. Stuffing box, stuffing, gland water ALL eliminated. Close clearances maintained by easy slippage seal adjustment. Heavy pumping parts of material best suited for YOUR particular problem. Complete engineering service. Prompt shipment of parts. The most efficient and economical pump you can buy. *Write for Complete Catalog*

A. R. WILFLEY & SONS, Inc. Denver, Colo., U. S. A.
NEW YORK OFFICE: 1775 BROADWAY

DENVER-DILLON VIBRATING SCREENS

This screen embodies a basically different principle in the application of circle throw motion, the entire weight of the load and the screen is carried on 4-Spring-cushioned Rubber Insulated Suspension Rods and thus no weight is carried by the bearings. Maintenance and power costs are low

NEW YORK CITY, NEW YORK: 50 Church St. MEXICO, D.F.: Edificio Juarez, Calle Ejido No. 7
CHICAGO: Suite 1005, 69 W. Washington St. MIDDLESEX, ENG.: 1932, Northolt Rd. S. Harrow
SALT LAKE CITY, UTAH: 737 Meldrum Bldg. RICHMOND, AUSTRALIA: 320 Victoria Street
TORONTO, ONTARIO: 45 Richmond St. W. JOHANNESBURG, S. AFRICA: 8 Village Road

DENVER EQUIPMENT COMPANY, 1400 17th St., Denver, Colorado

WILLIAM E. SYKES, famous authority on gears and inventor of the Sykes continuous tooth herringbone gear and the Sykes gear generating machine, died recently in England, where for the past six years he has been operating his own plants, W. E. Sykes, Ltd. He was formerly associated with Farrel-Birmingham Co., at Buffalo, N. Y., who acquired the American rights to the Sykes process of gear generation. In 1937 Mr. Sykes returned to England to devote his entire time to operating his business, at the same time retaining a connection with Farrel-Birmingham Co. as consulting engineer.

•

KARL W. LICK, superintendent, General Material Co., St. Louis, Mo., was killed recently at the company yard when a tire he was inflating blew out. According to reports, the tire was mounted on a rim but not on a wheel, and when the casing exploded the rim flew up and struck him in the head. Mr. Lick was 62 years of age.

•

ARTHUR NORRIS ROBINSON, Manager, Cement Works, Porbandar, India, died recently at the age of 64. Born in England in 1879 Mr. Robinson went to India before the last war as chief engineer and assistant manager of The Gokak Mills, Ltd., in the Deccan. During his 14 years' stay with this company, he successfully pioneered many innovations and was responsible for the greatly increased output of the mills. In 1928 he was appointed chief engineer and later manager of the Cement Works at Porbandar, Kathiawar, from which position he retired in 1940.

•

GEORGE VANG, president of the Ohio River Sand and Gravel Corp., Parkersburg, W. Va., and the Iron City Sand and Gravel Corp., Pittsburgh, Penn., died recently at the age of 64. Mr. Vang was well known as an engineer and superintended many large projects, among them being the Marysville Bridge, near Harrisburg, Penn., the largest 4-track stone arch structure in the world. He was also president of the Vang Crushed Stone Co., Vang Ready Mixed Concrete Co., Equipment and Supplies, Inc., and George Vang, Inc.

•

HAL WILLIAMS HARDINGE, inventor, consulting mining engineer and chairman of the board of the Hardinge Company, Inc., New York, N. Y., and the Hardinge Manufacturing Company, York, Penn., died recently at the age of 87. Mr. Hardinge was born in San Antonio, Texas, in 1855.

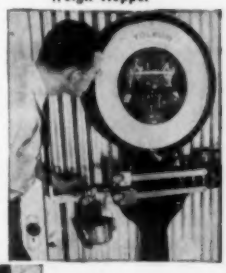
[SC]² PRECISION CONCRETE CONTROL

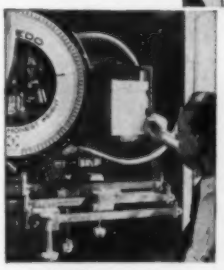
IMPROVES QUALITY
REDUCES COST

Attaches to your Weigh Hopper

Moisture Meter

The only unit capable of determining moisture content in ONE minute.





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Delivers correct DRY weight of aggregates and ADDED water. Makes a graph record of EVERY BATCH.

[SC]² CONTROL produces remarkable uniformity. Is always approved by concrete engineers. Has definite sales value. Write for our booklet "PROFITS IN CONCRETE."

SCIENTIFIC CONCRETE SERVICE CORP.
McLachlen Bldg., Washington, D. C.

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When you specify and buy Gears and Sprockets . . . keep the name INDUSTRIAL uppermost in mind —because it represents the highest quality, precision workmanship, fullest satisfaction in performance. We are gear cutting specialists with an extensive daylight plant devoted solely to the manufacture of cut Gears and cut Sprockets, by the most modern machinery and equipment available today.

Any type gear may be cut—of any material — in any quantity — also Generated Tooth Racks—Sprockets. We also do Precision Surface Grinding.

Remember the name INDUSTRIAL on your next order — it will protect you on quality and accuracy.

CHICAGO'S FASTEST GROWING GEAR PLANT

INDUSTRIAL GEAR MFG. CO.
4544 VAN BUREN STREET CHICAGO, 24 ILLINOIS

WHAT STYLE OF PERFORATION DO YOU WANT?

Hendrick Makes It!

Hendrick Perforated Metal Plate for vibrating and shaking screens is available in round, square, hexagonal, slotted, "Squaround", or special openings. It may be had with single or double corrugations; flat, or rolled to any curvature. It comes in a variety of metals, including the well and favorably known Hendrick High Carbon Heat Treated Steel. If you are not now using Hendrick Perforated Plate on your screens, write for data.

HENDRICK MANUFACTURING CO.

47 Dundaff St., Carbondale, Pa.
SALES OFFICES IN PRINCIPAL CITIES
PLEASE CONSULT TELEPHONE DIRECTORY

Makers of Elevator Buckets of all types. Mitco Open Steel Flooring. Mitco Shur-Site Treads and Armorgrids. Light and Heavy Steel Plate Construction.

He left school at the age of 13 and worked as printer's devil, railway newsboy and telegraph operator, studying assaying and chemistry in his spare time. In 1883 he became a prospector in Leadville, Colo., and subsequently served as an engineer for many smelting and mining companies in that area. Mr. Hardinge invented the Hardinge conical mill for grinding ores, the reverse air separator, the Telthermoscope and fire damp detector for coal mines. In 1938 he was awarded the James Douglas Medal "for his inventions and apparatus for fine-grinding ores," by the American Institute of Mining and Metallurgical Engineers

•

FELIX W. ZILISCH, secretary and treasurer of the Best Block Company, Milwaukee, Wis., died recently at the age of 53.

Manufacturers' News

Buda Co., Harvey, Ill., announces that C. N. Guerasimoff has been appointed by H. G. Smith, executive engineer, to the position of chief engineer of the engine division. Mr. Guerasimoff has been with the company for the past nine years during which time he has served as mathematician, engineer on stress analysis, and design engineer on gasoline and Diesel engines. From 1939 to 1940, he was in charge of the development and testing of Diesel engines. In August, 1941, he was appointed assistant chief engineer in charge of the radial Diesel engine division.

Army-Navy "E" award ceremony at the Austin-Western plant

General Electric Co., Schenectady, N. Y., has announced the appointment of Ralph J. Cordiner as assistant to the president. Mr. Cordiner, who resigned in June as vice-chairman of the War Production Board, was formerly president of Schick, Inc., of Stamford, Conn., prior to which he was manager of the appliance and merchandise department of the General Electric Co. His office will be at 570 Lexington Ave., New York, N. Y.

The Austin-Western Road Machinery Co., Aurora, Ill., has been awarded the Army-Navy "E" pennant for excellence in the production of war equipment such as caissons, ammunition wagons, tank parts, motorized sweepers for air bases, graders and rollers for road construction, etc., and each employe has been awarded an "E" pin.

Westinghouse Electric & Mfg. Co., Pittsburgh, Penn., has announced the appointment of Ralph C. Stuart as manager of the lamp division, with headquarters in Bloomfield, N. J. This announcement was recently made by George H. Bucher, president of the company. Mr. Stuart, who has been with the organization for 25 years, will have

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MULTI-WALL PAPER BAGS
HAMMOND Better Bags WELLSBURG, W.VA.
Sewn and Pasted Open Mouth and Valve Paper Bags. Your Inquiries Invited.
WRITE TODAY!
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UNIVERSAL SCREENS
and
"UNIVIBE" RIDDLES
Complete line of—
Tried, Proved and Guaranteed Vibrating Screens. Since 1919, the BEST in screening equipment at the LOWEST COST.
NEW! 32-page Catalog on Screens and Screening. Just ask for Catalog No. 107.
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RACINE - - WISCONSIN

Condor RUBBER PRODUCTS
BELTING
Conveyor, Elevator, Compensated, Transmission, Agricultural and V-Belts. Belting for every Service.
HOSE
Air, Acid, Contractors, Fire, Hydraulic, Oil and Gasoline, Steam, Sand Blast, Suction, Water, Spray and Special Hose. 81 Kinds for 81 Uses.
OTHER PRODUCTS
Chute Lining, Molded Rubber Goods, Industrial Brake Blocks and Lining, Rubber Lined Tanks, Rubber Covered Rolls — Abrasive Wheels, Bowling Balls.
Keep Ahead with MANHATTAN
THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES ... FACTORIES, PASSAIC, NEW JERSEY
111 Townsend St., Passaic, N. J.

HAYWARD BUCKETS
WON'T QUIT OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD COMPANY
202-204 Fulton Street
New York, N. Y.

charge of all activities of the lamp division, including sales, illumination engineering, district office activities of the lamp division, as well as manufacturing and engineering in the division's five plants in New Jersey and West Virginia.

Whiting Corp., Harvey, Ill., according to an announcement by Howard D. Grant, president, has appointed John Easton as director of the development and standardization activities of the company, succeeding A. J. Brown who has been transferred to California to be manager of the Pacific Coast branch.

Farrel-Birmingham Co., Inc., Ansonia, Conn., announces the election of Lester D. Chirgwin, general manager of the Buffalo plant, as a director of the company. Mr. Chirgwin started working for the company in 1909, as office boy.

Athey Truss Wheel Co., Chicago, Ill., has named R. J. Nadherny production manager, according to an announcement by C. K. Davis, president of the company.

Mack Trucks, Inc., New York, N. Y., has elected C. T. Ruhf president of the company, according to an announcement by Louis G. Bissell, chairman of the board. Mr. Ruhf had been executive vice-president since last January, following the death of E. C. Fink, former president and board chairman. Prior to that time he had been operating vice-president in charge of factories. In 1920 Mr. Ruhf was appointed assistant to the factory manager of the Allentown plant, in which position he served until appointed factory manager in 1937. In 1938 he was made operating vice-president in charge of production at the company's plants in Allentown, Penn., Plainfield, N. J., and New Brunswick, N. J. In this capacity he supervised the building of the heavy-duty motor trucks and prime movers now being supplied the armed forces and also the huge Mack-built transmissions used in many of the Army's 30-ton tanks.

C. T. Ruhf

Cummins Engine Co., Columbus, Ind., announces that Tom Collins, who has been on leave of absence for the past year to undertake a special project as executive assistant to President G. M. Duntley of the Pacific Freight Lines, has returned to the Cummins Engine Co. in his former capacity of manager of the company's Pacific Southern Region, with headquarters at 411 W. Fifth St., Los Angeles, Calif.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that Paul Dietz has been appointed export sales manager for the general machinery division. This announcement was made by William C. Johnson, general sales manager. Mr. Dietz was formerly with the export division of the B. F. Goodrich Co., Akron, Ohio. At Allis-Chalmers he will take the position left vacant by the death of Harlow Bradley.

The B. F. Goodrich Co., Akron, Ohio, has announced that William S. Richardson, general manager of the industrial products sales division, has been elected chairman of the O. P. A. Mechanical Rubber Goods Industry Advisory Committee, which will establish a working relationship between the Office of Price Administration and the industry to stabilize wartime prices, and make recommendations to O. P. A. on new developments. Mr. Richardson has been with B. F. Goodrich Co. since 1926.

Stearns Mfg. Co., Adrian, Mich. has received another citation for excellence in production of war equipment. This is the third award made to the company, the previous ones being the Army-Navy "E" pennant and the Bull's Eye flag, which were awarded last May.

PULVERIZERS for the reduction of Cement Materials, Limestone, **Agricultural Limestone,** Fire Clay and All Dry, Refractory Materials.

Capacities: 1 to 60 tons per hour **Finenesses: 20 to 350 mesh**

BRADLEY PULVERIZER CO.

ALLENTOWN, PENNA.

To Increase Capacities or Fineness of Present Grinding Plant—
To Reduce Power and Maintenance Costs—
To Insure an Absolutely Uniform Product—

***Use the* BRADLEY AIR SEPARATOR**

Record Tonnages in Screening Rock, Gravel & Ores Throughout the World

TY-ROCK

Full Floating Circle-Throw Action for Coarse and Medium Sizes

SCREEN

Write for Catalog No. 65

THE W. S. TYLER COMPANY CLEVELAND, OHIO

MANGANESE STEEL CASTINGS

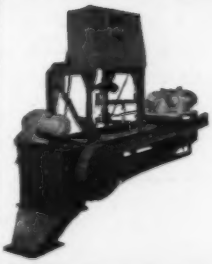
for PULVERIZERS CRUSHERS ROLLS SCREENS

for SHOVELS DREDGES CRANES CONVEYORS

The Frog, Switch & Mfg. Co.

Established 1881 CARLISLE, PA.

What rate per hour? What weight per day?



The Feedoweight Gives the Answer

Feeding, proportioning and batching—entirely automatic. The result—finished products of uniform quality with minimum manufacturing costs. The FEEDOWEIGHT correctly and uniformly feeds material by weight. In addition, an automatic totalizer will give you the exact total weight of all material so fed. It is a machine of unexcelled accuracy. Eliminate guesswork in your plant.

Write today for bulletin 551.

MERRICK SCALE MFG. CO. 168 AUTUMN STREET PASSAIC, NEW JERSEY

AS YOU NEVER DROVE BEFORE!

Many a soldier owes his life to a commander who drove him to the utmost in battle—*never let him slacken for a single fatal instant!* And after the war, many a worker will owe his economic safety to a leader who drove him continuously for higher Pay-Roll allotments for the purchase of War Bonds!

Despite higher taxes and prices, the average worker still has more money than ever before—particularly on the basis of the *family* income. With others in the family earning, too, just let the worker 'figure it out for himself', and he usually will realize that *now* he can put more into War Bonds than he has been doing.

That's why the Treasury Department has set new quotas for the current Pay-Roll Allotment Drive—*quotas running about 50% above former figures.* These quotas are designed to reach the *new* money that's coming into the family income. Coming from millions of new workers . . . from women who never worked before . . . from millions who never before earned anything like what they are getting today!

The current War Bond effort is built around the *family* unit, and the Treasury Department now urges you to organize your War Bond *thinking*—and your War Bond *selling*—on the basis of your employees' *family* incomes. For details, get in touch with your local War Finance Committee which will supply you with all necessary material for the proper presentation of the new plan to your workers through your labor-management committees.

Today about 30,000,000 wage earners, in 175,000 plants, are buying War Bonds at the rate of nearly half a billion dollars a month. Great as this sum is, *it is not enough!* So turn-to today! Get this new *family income plan working!*

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

YOU'VE DONE YOUR BIT—NOW DO YOUR BEST

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

This Space Is a Contribution to America's All-Out War Effort By

ROCK PRODUCTS

Classified Advertisements

POSITIONS WANTED — POSITIONS VACANT Set in six-point type. Minimum $1.00 each insertion, payable in advance.

INFORMATION—Box numbers in care of our office. An advertising inch is measured vertically in one column. Three columns, 30 inches to the page.

CLASSIFIED—Displayed or undisplayed. Rate per column inch, $5.00. Unless on contract basis, advertisements must be paid for in advance of insertion.

BACK THE ATTACK! INVEST IN WAR BONDS!

BELT CONVEYORS
24" x 125'
24" x 150'
30" x 120'
14" x 32'
30" x 425'

GYRATORY REDUCTION CRUSHERS
1—3' Symons Standard, with coarse bowl.
1—18" Telsmith Inter-Cone.
1—5½' Symons, coarse bowl.
1—Kennedy "49" with motor in pulley.

CRUSHING ROLLS
1—Set 36"x16" Sturtevant.
2—40"x16" Colorado Iron Works.
1—42"x16" Allis-Chalmers.

VIBRATING SCREENS
9—Tyler Hummers; 3'x5', 4'x5', one and two-deck.
1—4'x6' Kennedy, double deck.
1—3'x6' Niagara.
1—2'x3' Telsmith.

RAYMOND PULVERIERS
2—4 roll low side Mills, each with fan.

HAMMER MILLS
1—36"x24" No. 4XA Gruendler.

DRACO DUST COLLECTOR
For handling 30 tons per hour of 20 mesh and finer material, with three Type A compartments, No. 8 Nash vacuum pump, etc. Motors included.

HARDINGE CONICAL BALL MILLS
2—UNUSED 10' dia. x 48", iron lined, 24" water-cooled bearings, 25 tons steel balls for each mill, Lenix idler for flat belt drive.
1—4'6"x16", iron lined, with A.C. motor and silent chain drive.
1—5'x22" iron lined, with silent chain drive, with or without motor.

ROTARY KILNS
2—8'x135', 8'x125'.
1—7'x120' Vulcan, excellent condition, complete, out of service six weeks.
1—7' and 8'x80' Traylor.
3—5'6" x 7'x80' Vulcan and Reeves.
1—5'x50' Vulcan.

DIRECT HEAT ROTARY DRYERS
8—4'x30', 5'6"x24', 5x30', 5x40', 6x50'.

SPECIAL
4—70"x30' Ruggles-Coles Type A-9 double shell Direct Heat Rotary Dryers.

BALL AND TUBE MILLS
1—UNUSED 7'x23'9" Tube Mill, iron lined, including 400 H.P. 3/60/2200 volt slip ring motor and starting equipment.
1—5'x20' Bonnot Tube Mill, silex lined, cast steel heads, for direct gear drive.

AIR COMPRESSORS
1—12"x10" Ingersoll-Rand ER-1, with 50 H.P. 3/60/220 v. motor, receiver, etc.
2—12"x10" Penna. 3-A with 3/60/440 v. motors.
1—4000 CFM Nordberg, driven by 750 H.P. Diesel Engine, 100-lb. pressure.

FOR 25 YEARS A SYMBOL OF CONFIDENCE

CONSOLIDATED PRODUCTS COMPANY, INC.
15-16-17 PARK ROW NEW YORK, N. Y.
Shops and Yard at Newark, N. J., cover eight acres.

WHEELBARROWS

DEEP TRAY
Pneumatic Tires

●

Exceptionally good lot of wood frame wheelbarrows, equipped with roller bearing wheels and 4-ply 4.00 x 8 tires and tubes. Tires 16" outside diameter.

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Mail orders filled promptly

THE WILLIAM W NEWELL COMPANY
P. O. BOX 477, NASHVILLE 2, TENN.

AVAILABLE FOR IMMEDIATE SHIPMENT

4' x 8' Allis-Chalmers Style "B" Heavy Duty, Double Deck, Rock Screen driven with 5 H.P., 60 cycle, 3 phase motor. In guaranteed good operating condition.

R. S. ARMSTRONG & BRO. CO.
676 Marietta Street, N. W., Atlanta 3, Georgia

FOR SALE

LORAIN, Model 75, Serial 3194, gasoline, 1 cu yd. shovel.

NORHTWEST, Model No. 104, Serial 1849, gas crane, 45 ft. boom.

2—95C BUCYRUS steam shovels on traction wheels with 3½ yard dippers. Rebuilt condition.

McMYLER steam locomotive crane, Model No. 4, Shop 3427, 50 ft. boom, 22½-ton capacity.

MARION Electrical Shovel, Model No. 92, Ward Leonard control, 3½ and 5 yard dipper—on 4 cats. Now in operation.

1 yd. KIESSELER clamshell rehandling bucket. Rebuilt condition.

GYRATORY CRUSHERS 4K Gates—5K Gates—4D Gates.

Material Service Corporation
33 N LaSalle St., Chicago

AVAILABLE IMMEDIATE DELIVERY

1—Model X, 45 HP Wisc. Complete power unit.
1—Model TX 5½x7 Hercules gasoline engine.
1—Model TU 5½x7 Climax gasoline engine.
1—New Model XAHU Waukesha power unit.
1—5 KW, 110 v. DC Universal gasoline generator.
2—New VE-4 Wisconsin power unit direct connected to 7½ KW, DC, 125 volt, rebuilt generator.
1—New Palmer single cylinder Diesel engine.
1—New Sheppard single cylinder Diesel engine.
1—5 KVA 3/60/220 Fidelity generator, shopworn.
1—2 KW Westinghouse DC, 125 volt gen., direct connected to Bolinder single cylinder engine, 800 R.P.M.

Write Box B-27,
ROCK PRODUCTS
309 W. Jackson Blvd. Chicago 6, Ill.

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CHICAGO 1155 S. Wabash Ave.
NEW YORK 30 Church St., Dept. ENR
PITTSBURGH P. O. Box 6933, Dept. ENR
PHILADELPHIA 1503 Race St.

EQUIPMENT CORPORATION of AMERICA

WE SERVE 4 WAYS
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4

28–4 Yd. Transit Mixers–Nearly New–28

12—1942 Model Jaegers—High discharge, separate engine drive with two-speed transmission. 8 mounted on 1942 Dodge six wheelers, good rubber, excellent condition.

10—1942 Model Smiths—High discharge type. These mixers were used only 6 months.

Also 6—1938 Model Smiths—High discharge type. 3 mounted on 1938 Autocars, 2 on Macks and 1 on White truck. All single axle drive in good condition, with good rubber.

MOTOR TRUCK SALES AND EQUIPMENT COMPANY

Telephone: CALUMET 1255

2435 COTTAGE GROVE AVENUE **CHICAGO, ILLINOIS**

PLANT EQUIPMENT

Rebuilt & Guaranteed

2—4' x 6' Tyler Hummer Vibrating Screens Complete—Generator.

ENSLEY GUY DERRICK

80' boom 3 drum hoist

90 HP Motor—1 yd. Bucket

CUMMER ROTARY DRYER

56" x 40' Very Good Condition

WE BUILD IN OUR SHOP

Belt Conveyors

Bucket Elevators

Perfect Classifiers

WE REBUILD IN OUR SHOP

Pumps—Motors—Crushers

THE WILLIAM W NEWELL COMPANY

P. O. BOX 477, NASHVILLE 2, TENN.

PULVERIZERS

One Sturtevant Vertical Emery Mill, new emery stones recently. Price $675.00

One Kent Ring Roll Pulverizer Price $1950.00

One Bradley 3 Roll Pulverizer Price $1800.00

WHITEROCK QUARRIES

Bellefonte, Pa.

1¼-yd. Osgood Shovel.
½-yd. Byers Shovel and Crane, ¾ swing.
¾-yd. Austin Shovel, ¾ swing, tractor type.
2—18x36 Farrel Jaw Crushers, type 14-B.
2—13x30 Farrel Jaw Crushers.
1—18x36 Acme Jaw Crusher.
18A Telsmith Gyratory.
37 Kennedy Reduction, type S.
5x10 double, 5x10 single Niagara vibrator screens.
4x8 double, 3x8 double Telsmith vibrator screens.
5'x30' — 5'x24' — 5'x20' — 4'x18' — 42"x16' — 3'x18' revolving screens.
1 single and 1 double Lewis Foundry Machine Co., screw washers.
Allis-Chalmers 6" centrifugal pump type S-15,000 G.P.M.
80'x18" Belt Conveyor complete with frame and belt.
1—18" Bucket belt Elevator 70' center.
17—30" Bucket belt Elevator 66' center.
1—24" Bucket chain Elevator 80' center.
1—16" Bucket chain Elevator 40' center.
1—12" Bucket chain Elevator 36' center.
75 hp., 850 R.P.M.; 40 hp. 1200 R.P.M., slipring.
40 hp., 690 R.P.M. slipring; 25 hp., 850 R.P.M. slipring.
25 hp., 870 R.P.M. Electric motors.
2—G.M.C. Dump trucks model A.C. 402, 3-yd. steel bodies, rebuilt 1939.

Frank A. Kremser & Sons, Inc.

R. D. No. 2, Reading, Pa.

Ph. Leesport 100 Night Ph. Reading 42521

2 Hutt-Dussek Colloid Mills, capacity 2000 to 4000 gal. emulsion per hour, new condition.
4 KW D.C. Lighting Plant powered by LeRoi Engine, in Penna.
2 Ton Pierce Tandem Gas Road Roller.
Heltzel 100 ton 3 compartment Bin, Kron Dial, Weigh Batcher.
60 H.P. Induction Motor 60 cy., 3 ph., 440 V. Western Elec.
12 x 12 Farrel Jaw Crusher

L. M. STANHOPE

304 Conestoga Road, Wayne, Penna.

Tel. Wayne 0925-R

FOR SALE

1—Frank Adams 5 Panel Switchboard complete.
Panel No. 1—76" x 24" Steel with 2—400 Amp. oil circuit breakers with overload relays.
Panel No. 2—1—76" x 24" Steel panel with 1200 Amp. oil circuit breakers with overload and under voltage relays, ammeter and voltmeter.
Panel No. 3—76" x 24" Steel panel with 2—400 Amp oil circuit breakers having overload relays.
Panel No. 4—3—30 Amp., 250 volt, 3 pole, FA Switchfuz units.
3— 60 Amp. ditto.
3—100 Amp., ditto.
4—200 Amp., ditto.
Panel No. 5—1—30 Amp., 250 volt, 3 pole, FA Switchfuz units.
5— 60 Amp., ditto.
1—100 Amp., ditto.
4—200 Amp., ditto.
Cardholder for each switch.
Cooper busbar connections in rear of board from 1200 Amp breaker to Panels Nos. 3, 4 and 5.

BIG ROCK STONE & MATERIAL CO.

Big Rock Ready Mixed Concrete

LITTLE ROCK, ARK.

25 & 30 ton Gas Locomotives, std. gauge.
40-45 ton Saddle Tank Locos., std. gauge.
42 Ton Geared Loco., std. gauge, ASME.
27½ ton Loco. Crane, 50' boom, 60" boiler 125 lbs. Hartford, inc. 7½ generator.
Diesel Dragline, mounted on trucks, now equipped with 110' boom & 3 yd. bucket.
Steam Draglnie, 4 cats., 70' boom, 2½-yd.
Gas Cat. Crane, 50' boom, 1¼ yd.
Northwest 1 yd. Crane-Dragline, 45' boom.
Gas Shovel, ½ yd.; Truckcrane, ½ yd.
Skimmer Scoop attachment, 1 yd., for NW.
Shovel Front or parts for P & H ¾ yd. 206.
Misc. Shovel & Hoe attachments, etc.
45' boom—For Browning Loco. Crane.
Drag Scrapers—3-2-1½-1-¾ yd., elec. & gas.
Slacklines—2-1½-1 yd., electric & gas.
¾ Yd. rehandler Clamshell Bucket, $200.
¾ Yd. Owen type J Clamshell Bucket, Reblt.
1½ yd. Blaw-Knox Clam. bucket, rehandler.

James Wood, 53 W. Jackson Blvd., Chicago 4

FOR SALE

Giant Bradley Hercules Mill.
Goodman 36" gauge Mine Locomotive, 4 ton.
Osgood Conqueror Elec. Shovel, Mang. Dipper.
T2 Diesel Traxcavator.

W. H. FRIEND,

305 Madison Ave., New York, N. Y.

The Experts on "INFORMATION PLEASE" Are Seldom Stumped

The experts on ROCK PRODUCTS' staff don't do so badly either. Current problems in the industry are anticipated and answered as they arise. You'll find answers ot everyday problems by experienced experts on ROCK PRODUCTS' staff who get out in the field and know what's going on.

When you read ROCK PRODUCTS, you get all the answers on production, plant operation, management, marketing government regulations and news.

But, above that, you get new ideas that stimulate your thinking and open up new business opportunities.

The answer to the need for authoritative, helpful information in your business is ROCK PRODUCTS.

CRUSHERS, ROLLS, MILLS

Robins double roll coal crusher, 24"x30"
Stevenson single roll crusher, 24"x30"
Single roll crusher with knobs, 24"x24"
Corrugated double crushing rolls, 16"x17"
Simplex Unit coal pulverizer, type 33A
American Standard double roll crusher, 36"x30"
Sturtevant No. 6 Rotary Fine Crusher
Williams No. 2 Semi-Vulcanite hammer mill
Williams No. 2 Regular hammer mill
Traylor "Bulldog" 11" gyratory crusher
Jaw Crushers—8"x14", 9"x16", 11"x20", 18"x32"

SCREENS, SAND TANKS

Revolving screens—3'x8', 4'x16', 42"x18', 5'x20'
Hummer vibrating screens and 15 cycle generators
Two 3 deck 2'x5' Jigger vibrating screens
100 new Hummer "TONCAP" screens, 3'x5', 4'x5'
Diamond vibrating screen, 3 deck, 4'x8'

BUCKET ELEVATORS

50' vertical elevator, 16" buckets on chain
40' vertical elevator, 18" malleable bucket
50' vertical chain elevator, 20" malleable buckets
40' chain elevator, 10" malleable buckets
55' belt continues inclined elevator, 14" buckets
35' continues elevator, 30" buckets, 2 strands chain
1500' 6 ply 20" punched elevator belt
Gears, sprockets, elevating and driving chain
New K2 and couplings for C102½ and C188 chain

BELT CONVEYORS

100' 30" trough belt conveyor
16" trough belt conveyor, 100' long
Three 14" trough belt conveyor, each 100'
40 Robins 42" trough idlers
Belt idlers and pulleys, 14" to 36"
86' new 54" conveyor belt, 5-7 ply, 3/16" top.
600 36" 4 ply rubber coated conveyor belt
700' 30" 6 ply conveyor belt, ⅛" top surface
200' 42" 7 ply conveyor belt, ¼" surface
Flat "Steel-Belt" conveyor, 48"x100'
Jeffrey foundry mold conveyor, 42"x150'
Four Robins 14" automatic belt trippers
100 Jeffrey 38"x5" idlers, Timken roll bearings

MISCELLANEOUS

Dings Magnetic pulley, 12" dia. 14" face
Two electric car pullers with AC motors
Sprague Electric car puller, DC motor
Motors, Generators and centrifugal pumps
Worm drive speed reducers—75 to 1.50—1.40-1
10-ton Davenport standard gauge locomotive
8-ton Whitcomb 36" gauge gasoline locomotive.
1½-ton Mercury 30" gauge battery locomotive
Flat cars 20" and 24" gauge
Two yard 36" gauge V shape end dump car
6" electric centrifugal sump pump

AIR COMPRESSORS

14"x12" Chgo. NSB, 100 hp. slip ring motor, 529'
4 cyl. Schramm V belt to 60 hp AC motor, 360'
2 cyl. Ing. Rand with 50 hp Waukesha motor, 270'
6"x6" Ing. Rand Vertical hopper cooled, 44'

G. A. UNVERZAGT & SONS
136 Colt Street — Irvington, N. J.

CRUSHERS

GYRATORY: 42" Gates K. 30" Superior McCully (Like new). 20" Superior McCully. Gates Nos. 12, 10, 9, 8, 7½, 6, 5, 4, 3, 2, 1 (75 avail.) Telsmith Nos. 4, 5, 6 SC, 9 & 16. Also many Austins, Kennedys and Traylors, many sizes.
JAW TYPE: Traylor 60x84, 48x60, 42x48, 24x72. Superior 84x66 & 24x36. Buchanan 30x42. Farrel 60x42, 30x36, 24x36, 18x36, 12x24. Good Roads 1030. Acme 24x40. Misc. 7x12, 9x16, 8x20, 8x24, 12x24, 9x36, 15x36.
REDUC. TYPE: Kennedy Nos. 25, 37 & 49. Telsmith 3-F & 40. Traylor 36" TZ, 8", 10", 12". Super. McCully 6"x10". Newhouse 5, 7 & 10". Symons Cone & Disc 7y, 2' to 4'.
ROLLS: Allis-C. 12½x12, 36x10, 40x15, 54x24 & 72x30. Fairmount 36x60 & Jeffrey 24x24 to 36x54 single roll. Cornish 36x14 & 42x16, Etc., Etc.
HAMMERMILLS: Williams No. 1, 2, 3, 4, 8, & 9. Jeffrey 36x18 & 36x42. Day Nos. 20 & 40, Etc.
MILLS: Kennedy Ball 4x6, 5x6 & 5x8. Marcy 8x6 & 10x8. Hardinge 6'x3', 8'x30' & 6'x9'. Misc. Tube Mills 5' & 6' x 22'. Sturtevant Ring Roll, Raymonds, Kents, Fuller Lehigh, Etc., Etc.
CRUSHING PLANTS: No. 65 Diamond No. 22 Pioneer 8x24. 1030 Good Roads, 9x40 Austin-Western, 9x36 C.B.

MISCELLANEOUS ITEMS

Barges, Bins, Buckets, Boilers, Cableways, Cars, Compressors, Conveyors, Cranes, Dryer, Derricks, Elevators, Excavators, Generators, Hoists, Kilns, Draglines, Drag Scrapers, Dredges, Drills, Engines, Locomotives, Loaders, Motors, Pipe, Pumps, Rail, Scales, Screens, Slacklines, Shovels, Tanks, Trucks, Tractors, Etc., in many sizes, types and makes at low prices. (I have equipment at many points in the United States and Canada. What you need may be near your plant.)

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ROAD CONSTRUCTION PLANT

Complete with Ransome 27E Dual Paver, Finishers, Float Bridges, Road Pump, 7000' longitudinal Keyway Concrete Forms, Spray Curing Machine, etc. Just finished airport job.

SHOVELS—CRANES

P & H 150 Truck Crane, Mack Truck, almost new.
Universal 7½-ton Truck Crane on 6-wheel Mack.
Lima Model 101 comb. Shovel-Crane. Excellent.
Moore Speedcrane, 15 tons, gas, 65' bm.
P. & H. Model 600 Shovel, 1-yard cap.
Bucyrus Erie Model 1030 Electric Tunnel Shovel.
Bucyrus Erie 50B Steam Shovel, 2 yds.
Buc. Erie Steam Dragline, 6 to 8 yd. bucket.
Lorain 75A Dragline, 45' bm., 1¼ yd. bucket.
Marion Model 460 Electric Shovel, 1½ yds.
General ½-yard Crane, Cummins Diesel engine.
Byers ½ revolving Crane, Shovel and Backhoe.
Ind. Brownhoist 10-ton Cat. Crane, gas.

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TD35 Diesel with bulldozer, extra set new caterpillars.
TD40 Diesel Tractor with bulldozer.
Allis-Chalmers L Tractor with Baker bulldozer.
6—I.R. Wagon Drills.
4—Gardner-Denver Wagon Drills.
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2—Mack Trucks 6BX, Boulder type, 12 yds.
2—Sterling Trucks 170-C. Boulder type, 12 yds.
1—International Truck, 12 yds., Boulder type.
Butler 16-cu. ft. Asphalt Pug Mill.
2—Steel Stiff-leg Derricks, 10 tons, 100' bm.
Hardinge Conical Ball Mill, 4½' x 16".
Allis-Chalmers Cent. Pump, electric, 3500 GPM.
Worthington 8" cent. Bronze impeller, elec. port.
Dredge Pump 10" F.H. cent., nearly new.
Kennedy Van Saun Revolving Screen 4' x 18', almost new.

CONCRETE PLANT and EQUIPMENT

Heltzel 85-ton, 3 compt. Steel Bin, weigh batcher.
Rex 28S Mixer on skids, almost new.
Bulk Cement Bin, 350 bbls. Complete.
Blaw-Knox 3 compt. 100-ton Aggregate Bin.
Butler Complete Batching Plant 156 yds.
Heltzel 3 compt. Aggregate Bin 100 yds.
B.K. 50-ton, 2 compt. Bin with weigh batcher.
Fuller Kinyon Bulk Cement Unloader, portable.
Fuller C40 Rotary Air Compressor, electric.
Rex Pumperete Model 200 with 750' pipe.
Rex Pumperete Model 190 with pipe.
Rex Pumperete Model 180 with 500' pipe.
Ransome 27E Dual Paver with boom and bucket

CRUSHERS—CRUSHER PLANTS

Gyratory Crusher: K.V.S. 30, 37-S, 49; 32, 8A, 8B; Traylor 8"; McCully 13", 8", 6".
Allis-Chalmers Anaconda Type, 54"x24".
Jaw: 6x12, 9x16, 10x20, 14x24, 12x26, 13x30, 15x30, 16x32, 56x84.
Complete Rock Crushing Sand & Gravel Plants.

BUCKETS—STONE SKIPS

1½-yd. Williams Clamshell, rehandling.
2-yd. Hayward Clamshell, rehandling.
⅝-yd. Williams Clamshell, digging.
2—½-yd. Hains rehandling, Clamshell.
¾-yd. Hains Clamshell, rehandling.
Erie ¾-yd. Clamshell, rehandling.
Owen Stone Grapple.
Hayward ⅜-yd. Standard Orange Peel.

LOCOMOTIVES—CARS

American 60-ton, steam, std. ga.
American 50-ton, steam, Saddle Tank.
American 45-ton, steam, Saddle tank.
Vulcan 8-ton, std. gauge, gas.
Milwaukee, 9-ton, std. gauge, gas.
Vulcan 6-ton, gas, 36" gauge.
Whitcomb 4½ ton, gas, 36" gauge.
20—Phoenix, 5 yd. heavy duty, 36" ga. Quarry Dump Cars.
21—Koppel, 4 yd., 36" gauge Dump Cars.
6—40-ton Standard Gauge Flat Cars.

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PARAFFINE WAX OIL

For treating Concrete Forms and Pallets. A light colored, high paraffine content treatment for improved smooth finish results. Supplied ready to apply as a paste, or can be melted in drum for dip treatment. Cost 12c per gallon in drum lots. Discounts on larger quantities. Immediately available in any quantities.

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Kalamazoo, Michigan

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3 Kritzer & Schultless Hydrators.

AIR COMPRESSORS

BELTED: 355, 528, 676, 1000, 1300 & 1570 Ft.
ELECTRIC: 478, 676, 807, 1302, 1722 & 2200 Ft.
DIESEL: 603, 807 & 1000 Ft.
PORTABLE GAS: 110, 160, 220,310,540 & 1300 Ft.
STEAM: 49, 310, 528, 1300, 2300 & 3600 Ft.

CLAMSHELL BUCKETS, SKIPS & GRAPPLES

Owen R A & H Stone Grapples.
2 Yd. OWEN Type S Material Handling.
1½ Yd., 1 Yd. & ¾ Yd. HAYWARD Class E.
18 Steel Skips 6½ x 6 x 2½.
5 Ton Bucyrus Rock Grabs.

CRANES AND DRAGLINES

⅝ Yd. 5 Ton O & S 30 Ft. Boom.
12 Ton NORTHWEST 50 Ft. Boom Gas.
20 Ton LIMA, 750 Diesel, 65 Ft. Boom.
25 Ton BROWNING & 30 Ton AMERICAN Loco.
25 Ton LINK BELT K-48 Electric, 70 Ft. Boom.

CATERPILLAR SHOVELS

¾ Ld. Lima Diesel.
2 Yd. Marion Steam Shovel.
⅜ Yd., 1⅛ Yd., 2 Yd. & 4 Yd. MARION Electrics.
1 Yd. NORTHWEST Gas.
1½ Yd. LIMA Diesel.
1½ Yd. BUCYRUS 41B Steamer.
4 Yd. Bucyrus 120 B Electric. Also 3 yd. Erie Elec.

DUMP CARS

46—KOPPEL 1½ Yd. 24 & 30 In. Ga., V Shaped.
15—2 Yd., 3 Yd., 4 Yd., 6 Yd., 12 Yd., 36 In. Ga.
20—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 30 Yd. Cap.
15—Std. Ga. 50 Ton Battleship Gondolas.

FLAT CARS

9—50 ton std. ga. heavy duty flat cars.

HOISTING ENGINES

Gas: 15, 30, 60, 100 & 120 HP.
Electric: 30, 52, 80, 100 & 150 HP.
Steam: 6¼x8, 7x10, 8¼x10, 10x12, 12x14.

DIESEL UNITS

75, 90, 180, 200 HP. F. M. Engines.
110 HP Ingersol Rand Engine.
175 KVA Worthington 3/60/2300.
275 KVA Fairbanks 3/60/2300.

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6x8 Pebble Mill & 5x5 Batch Mill.
5'x22" HARDINGE CON. Dry Ball Mill.
6'x22" HARDINGE CONICAL Pebble Mill.
8'x22" HARDINGE CONICAL Ball or Pebble Mill.
4x8, 8x6 & 10x9 Straight Ball Mills.
4x16, 5x18 & 5x22 Tube Mills & 6'x22'.
3½x8 & 5x7 Air Swept Tube Mills.
2x4½, 6x12 & 5x12 ROD MILLS.

PULVERIZERS

JEFFERY, 24x20 & No. 1 Sturtevant Ring Roll.
RAYMOND Auto Pulverizer No. 0000, 0 & 3.
RAYMOND Imp. Mills, No. 4, 32 & 55.
GRUENDLER XXB Mill & Jay Bee No. 3 & 4.
RAYMOND 4 & 5 ROLL MILLS & 5 ft. Chaser M.

STEEL STORAGE TANKS

10,000 Gal., 15,000 Gal. & 20,000 Gal. Cap.

MATERIAL BIN

116 Ton Blaw Knox 2 Compt.

400 BARREL CEMENT BIN

400 Barrel Butler Portable Steel Cement Bin with Fuller automatic batcher, push button control.

SEPARATORS AND COLLECTORS

8, 10 and 14 ft. Separators, Gayco & Bradley.

ROLL CRUSHERS

36x60 Fairmount & 36x20 Diamond.

JAW CRUSHERS

10x8, 13x7½, 14x7, 15x9, 15x10, 16x9, 16x12, 16x10, 18x11, 20x8, 20x6, 20x10, 20x12, 26x12, 30x15, 30x13, 36x15, 36x30, 36x18, 36x14, 36x9, 36x6, 36x10, 36x24, 42x9, 48x24, 48x36, 60x42, 84x66, 36x16, 9x36.

CONE & GYRATORY CRUSHERS

42 in. McCully Mammoth Gyratory.
5 No. 19, 25, 37 & 49 Kennedy.
18 In., 24 in., 30 in., 36 in. & 48 in. Symons Disc.
4—10 TZ Traylor 4 ft. Gyratory.
4—Nos. 5, 3 & 6 Austin Gyratory.
2—Traylor T-12 Bulldog Gyratory, also 16 inch 8 in. Traylor T. Gyratory.
17 Gates K—Nos. 3, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 165.
6, 10 & 13 Inch Superior McCullys.

SYNCHRONOUS MOTOR GENERATORS

100 K.W. RIDGWAY 3/60/2200-250-275 volt.
150 K.W. GEN. ELEC. 3/60/2200-250-275 v.
200 K.W. RIDGWAY 3/60/2200-250-275v.,900 rpm.

SLIP RING MOTORS

52 HP. GEN. ELEC. 3/60/440 v., 1200 rpm.
(3) 100 HP. GEN. ELEC. 3/60/440v.,900-1200rpm.

CONVEYOR PARTS

BELT: 1000 Ft.60 In., 700 Ft.40 In., 600 Ft.36 In., 800 Ft.30 In., 1642 Ft.24 in., 517 Ft.20 In., 297 Ft.18 In., 500 Ft.16 In., 300 Ft.14 In.
IDLERS: 54 In., 42 In., 36 In., 30 In., 24 In., 20 In., 18 in., 16 In. & 14 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In.,30 In.&36 In.Sections.

ROTARY DRYERS AND KILNS

36 In.x20 Ft., 3 Ft.x30 Ft., 4 Ft.x30 Ft., 54 In. x30 Ft., 42 In.x24 Ft., 5 Ft.x30 Ft., 5 Ft.x16 Ft., 5 Ft.x60 Ft., 6 Ft.x60 Ft., 6 Ft.x20 Ft., 6 Ft.x70 Ft., 10x20, 7½x100&8x110 Ft. Kilns.

STEEL DERRICKS

GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom,25 Ton 100 Ft.Boom,75 Ton 135 Ft.Boom.

LOCOMOTIVES

GASOLINE: 3 Ton,5 Ton,8 Ton,12,14, and 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 40 Ton.
DIESEL: 4, 8 & 15 Ton.

SCREENS

VIBRATING: 2x4, 3x6, 12x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72 & 4x12, 1, 2 & 3 Deck.
HUMMER ROTEX, NIAGARA & ROBINS.
REVOLVING: 3x12, 3x16, 3½x18, 3x24, 4x16, 4x20, 4x23, 4x24, 5x30, 5x20, 6x20.

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LOCOMOTIVE CRANE

1—15-ton Bucyrus Erie locomotive crane, Serial No. 253, with 40' boom, steam powered. Equipped with air brakes. Thoroughly REBUILT. Cap. at a 12' radius and a 2 part line, 30,000 lbs. Boiler, vertical, size 54"x7'6". Shipping Wt. 87,500 pounds.

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1—1190 cu. ft. Ing.-Rand 2-stage comp. Requires 206 H.P. to operate at 100 lb. pressure.

1—835 cu. ft. actual Ingersoll-Rand low pressure Diesel driven compressor, Class EIGA8, size 16x7x19, rated 835 cu. ft. at 40 lbs. pressure.

1—347 cu. ft. Sullivan, class 13, 2-stage comp., power 112 H.P. Diesel engine.

1—200 cu. ft. Chgo. Pneu. comp., power Diesel engine.

1—Air receiver, 60" dia. x 120" long.

Portable

1—315 cu. ft. LeRoi, 2-stg., mtd. on 4 pneu. tires.

1—210 cu. ft. Ing.-Rand, 2-stg., mtd. on 3 steel wheels.

5—160 cu. ft., 2-stg., Ing.-Rand, LeRoi, Davey and Worthington, on pneus., and steel wheels.

6—105 cu. ft., 2-stg., C.P.T., Ing.-Rand and Davey, mtd. on pneus. and steel wheels.

CRUSHERS

1—No. 4 Champion jaw crusher, size 9x15", Ser. No. 2606.

1—No. 2 Climax jaw crusher, size 9x16".

1—Buchanan jaw crusher, size 10x16".

1—Acme jaw crusher, Ser. No. 1873, size 12x20".

1—Acme jaw crusher, Ser. No. 1686, size 9x16".

1—United Iron Works, "Blake-type" jaw crusher, size 9 ½ x24".

1—Allis-Chalmers, No. 5 gyratory crusher, Ser. No. 5331, opening 10x38".

1—Austin No. 5 gyratory crusher, Ser. No. 295, opening 12x35 ½".

DRILL STEEL

200 Pcs. 1¼" round, from 2' to 24'; with threaded ends for bits;

200 Pcs. 1¼" round, with formed 2" bit, which can be threaded.

50 Pcs. 1¼" hexagon from 2' to 12', threaded for bits;

40 Pcs. 1" hexagon from 2' to 8', threaded for bits;

2000 new 4-point Timken bits, for 1" rod.

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3—Steel Guy Derricks; 1—20-ton American-Terry 90' mast, 110' boom; 1—5-ton Terry Guy derrick, 70' mast, 60' boom; 1—5-ton Insley, 75' mast, 80' boom; Stiff leg derricks; 1—12-ton derrick 75' boom for hook work; 1—2-ton Pittsburgh, 26' boom, 15' mast. Also a number of wood stiff leg derricks, 1 to 5-ton cap.

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55—Electric, ranging from 20 H.P. up to 125 H.P., consisting of triple-drum, double-drum and single-drum, with AC or DC motors, some with attached swingers. Following makes: American, Clyde, Lambert, Lidgerwood and National.

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FOR SALE!

1—Vulcan 6' x 42' Rotary Dryer, ½" shell.
1—Vulcan 7' x 120' Rotary Kiln, 2 tire, EXCELLENT CONDITION, can be seen in operation.
1—Mosser 5' x 50' Rotary Kiln.
4—Chain Bucket Elevators, steel housing, 25', 30', 35', 45' centers, 8" to 13" buckets.
1—Set Crushing Rolls 18" x 10".
1—36" x 6' Ball Mill, chilled iron liners.
1—Patterson 2'6" x 3'6" Continuous Tube Mill, motor driven, porcelain lined, PRACTICALLY NEW.
5—Tyler Hummer Screens 3' x 5', 4' x 5'.
1—Jeffrey 24" x 12" Hammer Mill 25 H.P. motor
10—Jaw Crushers, 7"x10" to 24"x36".
1—Jeffrey Hammer Mill, 24" x 36", Type "A".
13—Hammer Mills, Williams, Jeffrey, Gruendler.
7—Rotary Dryers, 4'x20' to 6'x60'.
1—Ruggles Cole 5' x 30' Rotary Dryer.

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LOCOMOTIVES SHOVELS — CRANES CARS

1—82 ton Porter 0-6-0 separate tender switcher, 22" x 26" cylinders, National Board and A.S.M.E. boiler, I. C. C. papers.

1—71 ton Baldwin 0-6-0 saddle tank switcher, A.S.M.E., Pennsylvania and Ohio code, built 1930, overhauled with entire new firebox.

1—40 ton American 4-wheel, saddle tank, standard gauge, A.S.M.E. boiler, completely rebuilt.

1—33 ton Vulcan 4-wheel saddle tank, standard gauge, A.S.M.E. boiler, new firebox in 1942, first class condition.

1—40 ft. steel underframe flat car, 50 ton.
1—60 ft. steel underframe flat car, 40 ton.

1—2 yard Hayward rehandling 2 line clamshell bucket, completely overhauled.

Birmingham Rail & Locomotive Co.
BIRMINGHAM 1, ALABAMA

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100 Lb. Bradley Helve Hammer with 3 H.P. Motor.

20" Upright Drill Press, No. 4 Morse Taper with 2 H.P. Motor.

20"x8' American Lathe, Q.C.G., Motorized.

Barber Greene Bucket Loader, Buda Gas Engine, Disc Type.

Jaw Crushers, 8"x12" up to 9"x36".

Clamshell Buckets, Erie ⅝ to 1 Yard, General Purpose-Owen, Type K, ¾-1-1¼ Yard.

Blawknox, ⅝-¾-⅞-1-1¼ Yard, General Purpose-Brownhoist, 1 Yard, Material Rehandling-Owen, Type S, 2 Yard.

Dragline Buckets, Page, ¾-1-1¼-2¼ Yard, Class C.

The above equipment is offered for immediate delivery and subject to prior disposition.

YATES MACHINE WORKS
115 Main Street - Rochester, Michigan

TANKS from Tank Cars
Large quantity
8,000-gallon — 10,000 gallon
Built for 60-lb. Hydrostatic and 25-lb. Air Tests.
Cleaned Tested Painted

Special Notice:
What would **PORTABLE** storage of your Liquids save you? Ask our proposition on **WHOLE CARS!**

Also TANKS, Commercial—Vertical and Horizontal
From 2,879 to 12,500 gals. and even much larger.

IRON & STEEL PRODUCTS, INC.
38 Years' Experience
13492 S. Brainard Ave.
CHICAGO 33, ILLINOIS
"ANYTHING Containing IRON or STEEL"

FOR SALE

The following parts for 4-ft. Standard Symons Cone Crushers:

Two (2) Used Bowl Assemblies for Coarse Crushing, consisting of 2 coarse Bowls No. 42176, 2 Coarse Bowl Liners No. 42208, each with 6 Bowl Liner Bolts, Springs and Washers. These units completely assembled with Coarse Bowl Liners zinced in. Both in first class operating condition.

One (1) New Bowl Liner for Coarse Crushing No. 42208. Never been used.

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COMMONWEALTH QUARRY COMPANY
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Motors and Generators, A.C. and D.C., for sale at Attractive Prices. Large Stock. New and Rebuilt. All fully guaranteed. Send us your Inquiries.

V. M. NUSSBAUM & CO.
FORT WAYNE, IND.

FOR SALE

10—25 ft. lengths
1—15 ft. length,
12" diameter cement pumping hose with rubber flanges wire reinforced and malleable iron back up flanges.

TRINITY PORTLAND CEMENT COMPANY
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FOR SALE

American Steel & Wire Company Aerial Tramway. 150 tons capacity per hour. Double reversible type, 748 ft. span.

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Portsmouth Ohio

Have You Any Idle Equipment To Offer —

QUALITY
OVERHAULED EQUIPMENT

All equipment listed is owned by us. All overhauling done in our modern daylite shop by experienced mechanics.

CRANES, SHOVELS, & ATTACH.

KOEHRING, ¾-yard crane, excellent condition.
P & H 600, 1¼-yard, lifting capacity 19 t n. ($1,000.00 spent in complete overhaul).
P & H 206, ⅝- to 1-yard crane.
SHOVEL ATTACHMENTS for 600 P & H, No. 4 and No. 105 Northwest, 301 Koehring.

CRUSHING & WASHING PLANTS

OCK CRUSHING PLANT, 15x38 roller bearing crusher, feeder 42x24" roller bearing rolls, vibrating screen, bin; 2-unit outfit; with or without power; overhauled.
CEDARAPIDS single-unit, straight-line Model JT-400, 1938 model, 10x24" roller bearing crusher, 16x16" roll crusher 3x10' Symons screen, on pneumatics. Waukesha power.
ALLIS-CHALMERS, 12x24, Improved Blake crusher.

LIME PULVERIZERS

10-LIPPMAN, 24x18, on steel wheels, with elevators.

POWER UNITS (Overhauled)

CLIMAX 60 h.p. 5½x7.
WAUKESHA 50 h.p. 5x7.
WAUKESHA 75 h.p. 6x6½.

BOEHCK EQUIP. CO.

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SPECIALS

15 Ton Plymouth 36. Ga. Diesel Locomotive.

2—42B Barber Green Bucket Loaders.

2—2½-yd. Bucyrus Erie Diesel Draglines Model 52B, 60 Ft. Boom.

1—2-yd. Bucyrus Erie Diesel Dragline Model 43B, 50 Ft. Boom.

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30"	5	1/8"	1/16"
24"	5	1/8"	1/32"
24"	4	1/8"	1/32"
20"	5	1/8"	1/32"
20"	4	1/8"	1/32"
18"	4	1/8"	1/32"
16"	4	1/8"	1/32"
14"	4	1/16"	1/32"
12"	4	1/16"	1/32"

Inquire For Prices - Mention Size and Lengths

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Width	Ply	Width	Ply	Width	Ply
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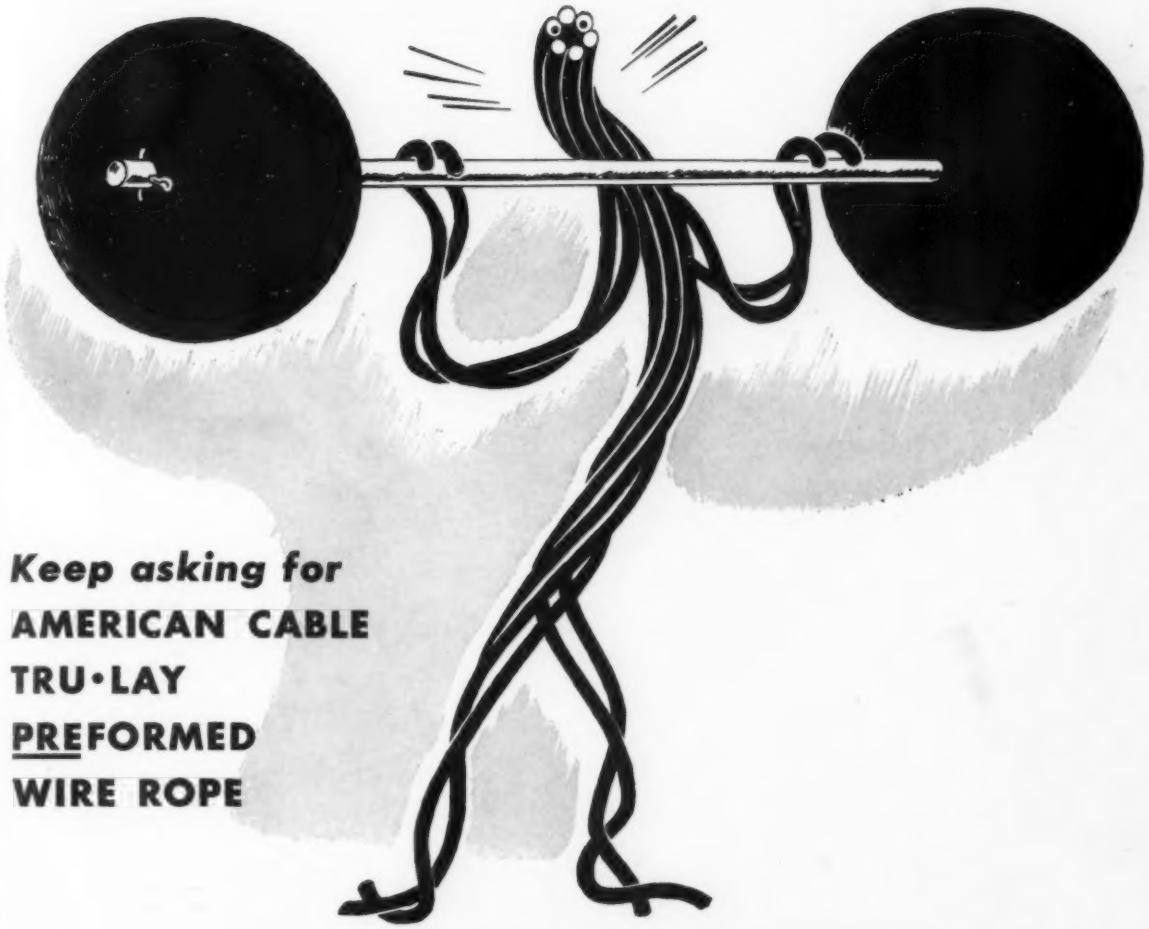
That "V" in your name is a symbol of Victory . . . the Victory which we and our allies will help you win. We're working toward it now in mill and factory . . . and in mine and quarry. In mines where coal and ore and stone are blasted out of the earth. For such key men our own skilled workers are producing essential equipment —Ensign-Bickford Safety Fuse and Primacord-Bickford Detonating Fuse—to hasten mining production and promote safety.

Victory Begins Underground!

THE ENSIGN-BICKFORD COMPANY
SIMSBURY, CONNECTICUT J-P

Primacord·Bickford
Detonating Fuse



Keep asking for
AMERICAN CABLE
TRU•LAY
PREFORMED
WIRE ROPE

Because . . .
it has strands that bear the load equally
•

• American Cable's preforming process preshapes every wire in a TRU-LAY wire rope to its final helical contour. It puts every strand under exactly the same tension. • When TRU-LAY is installed and the load applied, each strand settles down to work carrying an equal share of the load, bearing with equal pressure against the core. This makes American Cable TRU-LAY Preformed wire rope immune to the development of high and low strands which are common occurrences with non-preformed wire ropes. • This is only *one* of the many advantages you gain when you specify American Cable TRU-LAY Preformed wire rope. It steadies your machine production; saves you time, accidents, and money.

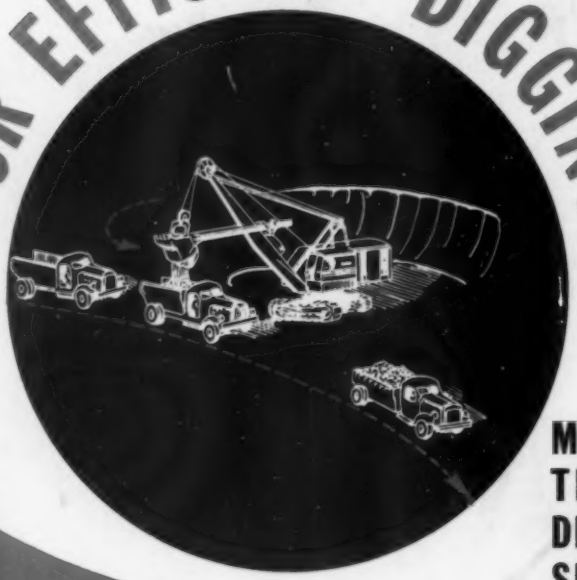
No wonder the Armed Forces took so much of our production!

AMERICAN CABLE DIVISION
Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Portland, Tacoma

AMERICAN CHAIN & CABLE COMPANY, INC.
BRIDGEPORT, CONNECTICUT

ESSENTIAL PRODUCTS . . . TRU-LAY Aircraft, Automotive, and Industrial Controls, TRU-LOC Aircraft Terminals, AMERICAN CABLE Wire Rope, TRU-STOP Brakes, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Castings, CAMPBELL Cutting Machines, FORD Hoists, Trolleys, HAZARD Wire Rope, Yacht Rigging, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

TODAY AS ALWAYS FOR EFFICIENT DIGGING

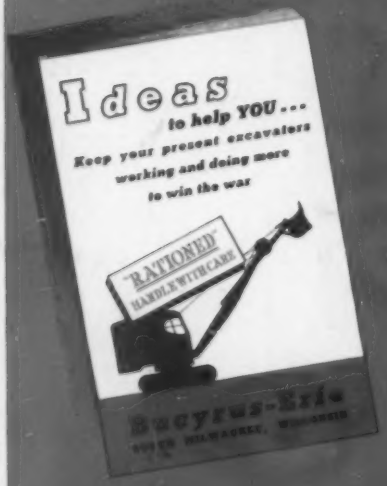


MOVE MATERIAL THE SHORTEST DISTANCE IN THE SHORTEST TIME

Are you sure you are getting the most out of your excavating equipment? That your job setup takes full advantage of the primary factors of Distance and Time to secure efficiency and long life?

Under pressure of continuous 3-shift wartime operation, on-the-job compromises may bring about alterations in your planned setup which result in lowered production. To overcome this, owners and operators will find it advantageous to make occasional checkups of their machines and methods.

As a guide to such a fresh and critical approach, we have prepared a booklet filled with down-to-earth suggestions. Ideas for the operator, tips on maintenance and the importance of adjustments, brass-tack discussion on lubrication, power plant servicing, hints on efficient handling of shovel, crane and dragline and on the importance of observing safety rules — all are presented in simple, readable form which we believe every owner and operator will find useful. A copy is yours for the asking from your Bucyrus-Erie distributor; or if you prefer, write us direct.



This 32 page, 5½ x 8½" booklet, attractively illustrated and printed in two colors, is packed with practical, experience-tested suggestions on how to maintain maximum excavator production. The material applies to any make of excavator, any size. Extra copies available for your operators and foremen.

KEEP EVERY EXCAVATOR PRODUCING AT MAXIMUM EFFICIENCY

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